

Internship Report

Project report submitted in partial fulfillment of the requirement for the degree of
Bachelor of Technology

in

Computer Science and Engineering/Information Technology

By

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Under the supervision of

Mr. Vinay Dixit

To



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Candidate's Declaration

I hereby declare that the work presented in this report entitled “**Internship Report**” in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering/Information Technology** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology, Waknaghat is an authentic record of my own work carried out over a period from 7 February 2022 to 31 May 2022 under the supervision of **Dr. Vipul Kumar Sharma, Computer Science Department**.

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Arpit Garg,
181412

This is to certify that the above statement made by the candidate is true to the best of my knowledge.

Dr. Vipul Kumar Sharma
Assistant Professor (Grade-II)
Computer Science
Dated:



Mr. Vinay Dixit
Sr. Manager
Technology
Dated: 29-05-2022

Acknowledgement

I, right off the bat, express my heartiest thanks and thankfulness to all powerful God for His heavenly gift makes it feasible for us to finish the task work effectively.

I'm truly thankful and wish my significant obligation to Boss Dr Pardeep Kumar, Partner Teacher (SG), Branch of CSE Jaypee College of Data Innovation, Wagnaghat. His interminable persistence, academic direction, consistent consolation, steady and enthusiastic oversight, productive analysis, important exhortation, perusing numerous substandard drafts and adjusting them at all stages have made it conceivable to finish this task.

I should offer my heartiest thanks to Dr Pardeep Kumar, Part of CSE, for his generous help to finish my endeavor. I would moreover generously welcome each and every one of those individuals who have helped me straightforwardly or in a roundabout way in making this adventure a triumph. In this outstanding situation, I ought to thank the different staff individuals, both educating and nonpreparing, which have cultivated their profitable help and worked with my undertaking. Finally, I ought to perceive with due respect the reliable assistance and patients of my people.

Arpit Garg

181412

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Abstract

The assigned work was to learn the development in C# and learn various debugging tools of Microsoft Visual Studio. With learning visual studio different applications can be developed which include windows forms, Console Applications, etc. Hence the task is to learn the programming language and tool. Then develop a utility for the company's software called QTP. The development needs to be carried out involving various network calls file handling which should also have a great User Interface and User Experience. Along with this, the day-to-day issues or findings in the company's software reported by different users need to be found and resolved.

This internship was to get some hands-on experience in the industry-level project with the leading companies and get ready to work in the industry. Create a trading platform that is based on a culture of accountability and excellent delivery. Assist the technical operations team with problem identification and resolution on a second-level basis. Be in charge of capacity planning and testing, as well as defining and tracking suitable KPIs for production health. Through contact with internal and external stakeholders, the successful applicant will be able to drive projects to completion. Candidates with past experience in software product development and team management are preferred. Project management and production support. Strong debugging skills in C++. Working knowledge of C#, .net, and databases (SQL server). Working knowledge of Linux shell scripting would also be beneficial.

Chapter 1

Introduction

1.1 Estee Advisors:

Estee Advisors Private Ltd is a quant-based management system for investment and execution services, provider. It was started on May 2008 when the SEBI Allowed Algo trading in India. Estee is a pioneer for building and developing algorithmic investment and execution products and the track record of Estee is also very strong in Indian capital markets, being the leading stockbrokers in India. Estee is present across three different lines of business:

Asset Management: Estee offers quant-based, market-neutral investment products to HNIs, corporate treasuries, and family offices. Estee's flagship market-neutral product, I-Alpha has not had a single negative return month since its inception in May 2009.

Proprietary Trading: Estee's proprietary trading group is an active market maker across exchanges in Indian as well as global capital markets. Being one of the accredited algorithmic trading companies in India, Estee helps stock exchanges grow liquidity in selected scrips through market-making services and often acts as a designated market maker for the exchange.

Execution Services: Estee is a registered broker dealer with having major securities exchanges in India and offers a suite of trade execution and support services to global investors looking to trade in emerging markets. Estee is one of the leading providers of low latency brokerage services in India. Estee provides a suite of execution services including brokerage services on all leading Indian exchanges as well as technical and infrastructural support.

1.2 Problem Statement

The assigned work was to learn the development in C# and learn various debugging tools of Microsoft Visual Studio. With learning visual studio different applications can be developed which include windows forms, Console Applications, etc. Hence the task is to learn the

programming language and tool. Then develop a utility for the company's software called QTP. The development needs to be carried out involving various network calls file handling which should also have a great User Interface and User Experience. Along with this, the day-to-day issues or findings in the company's software reported by different users need to be found and resolved.

1.3 Objective

The objective of this internship was to get some hands-on experience in the industry-level project with the leading companies and get ready to work in the industry. Create a trading platform that is based on a culture of accountability and excellent delivery. Assist the technical operations team with problem identification and resolution on a second-level basis. Be in charge of capacity planning and testing, as well as defining and tracking suitable KPIs for production health. Through contact with internal and external stakeholders, the successful applicant will be able to drive projects to completion. Candidates with past experience in software product development and team management are preferred. Project management and production support. Strong debugging skills in C++. Working knowledge of C#, .net, and databases (SQL server). Working knowledge of Linux shell scripting would also be beneficial.

1.4 Organization

Estee Advisors Private Limited is provider of quantitative investment management and execution services.

- **Proprietary Trading in India**

Estee's proprietary trading teams focus on various tasks like developing and deploying a variety of innovative and quantitative trading strategies which come across markets and asset classes. Being one of the trusted proprietary trading firms of India, Estee is

an active participant in major Indian exchanges and trades international venues through its US affiliate, Estee Capital LLC.

As a leading systematic trader, all our quant-based proprietary trading models go through a rigorous process of developing in-house and are backtested over long periods before going live. Once live, our automated strategies are deployed across asset classes (equity, currency, commodities, debt) and instruments (futures and options). We have a robust risk multi-layer risk management system and an automated execution platform that helps enable trading across multiple strategies and markets seamlessly.

- **Asset Management Firm in India**

Estee's asset management offerings include market-neutral investment products focused on generating moderate, yet consistent returns at low volatility levels. Being one of the leading top asset management companies in India, Estee uses a quant based investment approach, using its proprietary algorithms to identify market opportunities, which are executed through Estee's low latency, DMA (Direct Market Access) enabled trading platform. The primary approach is rule-based, disciplined, and model-driven. Downside risk management is done through constraints on the sector, beta, long/short exposure, and risk metrics.

- **Arbitrage Hedge Fund Investment Strategy**

- I-Alpha: I-Alpha is Estee's flagship market-neutral scheme which does **Arbitrage in India** at 1% per month net of fees and transaction costs since inception in May 2009 and the **Hedge fund's India** only offering has not had a single negative return month to date since its inception in May 2009.
- Long-Alpha: Long Alpha is a directional strategy that aims to consistently outperform the benchmark equity index while maintaining low volatility. It is a

quantitatively managed fund that implements a systematic rule-based trading model to remove human subjectivity. The strategy takes data from the market as input and identifies investible businesses from S&P BSE 500 universe using a combination of technical and fundamental factors based on which the position is built in the top-ranked stocks.

- Estee India Fund: Estee India Fund uses an quant-based investment approach which is capable to identify market-neutral **Arbitrage** trading opportunities **in India** as well as other emerging markets. It is sponsored by our US affiliate Estee Capital LLC, based in New Jersey, US. Estee Capital is registered for the Commodity Pool Operator which is also National Futures Association and is permitted to solicit funds from US-based Qualified Eligible Persons. Estee India Fund utilizes automated, algorithm-driven strategies to generate moderate to high returns at less than half the market volatility. Since 2009 these strategies already have a track record in Indian markets, deployed by Estee Advisors Private Ltd, our execution and research affiliate in India.
 - Estee Capital LLC is a Commodity Pool Operator (CPO) permitted to solicit funds from US-based Qualified Eligible Persons (QEPs) is defined under Commodity Futures Trading Commission regulations 4.7 (a) (2) and (a)(3) and other international accredited investors. Qualified Eligible Persons (QEPs) should refer to the Private Placement Memorandum (PPM) for further information.
- **Overview About Company**

Estee is a registered broker-dealer who is having major stock exchanges in India (NSE, MCX, BSE, and MCX-SX) and offers a suite of trade execution and support services to global investors looking to trade in emerging markets. These services include:

 - **Analysis**:- Estee helps global investors analyze the Indian market through TBT,

Snapshot, and EOD data and backtesting services. We have extensive knowledge and experience in trading in Indian markets and can help traders to make an entry decision.

- **Setup:-** Estee can assist in the creation of an efficient and fully compliant entity structure and guide through the setup process, regulatory approvals, partner selection, and physical infrastructure setup.
- **Execution:-** Estee has a proprietary ultra-low latency platform with an order capacity of 10MM+ orders. We also have the extensive infrastructure available across major Indian exchanges with inter-exchange connectivity as well as connectivity with major International exchanges.
- **Risk Management:-** Estee has a real-time multi-layered customizable RMS. We offer live trade monitoring, trade support services, and pre and post-trade analytics to help clients effectively manage their trading operations.

- **Infrastructure and Support Services**

Estee Execution Services is a one-stop-shop for FPIs / Indian traders looking for seamless integration for algorithmic (including high frequency) trading in India.

- **DMA Broker Facility with BSE/NSE Co-Location Service**

Estee Execution Services is a one-stop-shop for FPIs / Indian traders looking for seamless integration for algorithmic (including high frequency) trading in India. We provide the requisite infrastructure setup for specific trading requirements along with support services for setting up an entity and commencement of trading.

Infrastructure:

- **NSE Co-location** along with full NSE DMA (Direct Market Access) solution. We are also a DMA Broker and offer co-location services on the BSE, MCX, and MSEI
- Interexchange connectivity among leading India exchanges including the NSE, and BSE. MCX & MSEI.
- Assistance in procuring required high-performance hardware infrastructure
- Live data feed facilitated through co-location across exchanges and inter-exchange connectivity. This normalized data feed can be accessed globally.

Support Services:

- Assistance in documentation/set up of FPI entities for foreign investors
- Assistance in applying for PAN Card, Tax filing, and other regulatory requirements in India
- Coordination with Custodian, Clearer, and Bank for the seamless trading transaction.

Technology Infrastructure:

- Co-located servers and full DMA (Direct Market Access) on BSE, NSE, MCX, and MCX-SX.
- Inter exchange connectivity among NSE, BSE. MCX & MCX-SX. Please contact us at BD@Esteadvisors.com to know more about how we can help you access Indian capital markets.
- Live data feed facilitated through co-location across exchanges and inter-exchange connectivity. This also includes a normalized data feed that can be accessed globally.

Execution Platform and Brokerage Services:

- World-class low-latency platform with a capacity of 10 MM+ orders/day
 - Approved for algorithmic trading and licensed on NSE, BSE, MCX & MCX-SX across all asset classes and instruments including Equity, Futures & Options, and Currency Derivatives.
 - Single normalized low latency API available on Windows and Linux, with support available for .NET and C++
 - High-speed execution with Smart Order Routing capability
 - Guaranteed VWAP execution for Indian markets
 - High turnover through its low-latency platform enables efficient price-discovery and low, affordable bid and ask quotes
 - Real-time performance analytics and risk management capabilities including:
 - Real-time, pre-trade risk checks
 - Real-time (1 second), post-trade view of P&L, Margin Utilization, Risk calculations with the view by strategy, fund, exchange, and a number of other levels of aggregation
 - Real-time order, trade, position view
-
- **Retail Execution Services**

Gulaq

For every individual, having access to a platform for doing an online mutual fund investment is just the beginning of the financial journey.

But the real question is, what is the best pick for you? How to create your portfolio? and How often to re-balance it? No hassle, Gulaq is right here to solve your problems, so along with an easy and simple to use platform where research plays the key role, we will guide you through the complete investment cycle.

Gulaq is an India-based financial platform that offers its users direct mutual funds; investment advisory, and stockbroking via its online platform gulaq.com and android mobile application. Headquartered in Gurugram, Gulaq is a digital financial platform

that understands users' profiles, goals, and risk appetite, and accordingly, its automated Asset Allocation and Optimization tools will take care of users' personal finance in every possible way.

The Gulaq Promise

- Seamless Onboarding and Execution
- Quantitative Optimized
- Transparent and Fair
- Secure and Private

Advisory

True to state that- Technology is bringing disruption of all fields. Finance is the sectors which have been distorted due to disruptive technology. The two crucial functions of this domain are transaction and advisory.

Innovation like blockchain and digital payment has completely transformed the industry in terms of transparency and speed of the transaction. But one major innovation which has made a breakthrough in financial advisory is 'Robo Advisory'.

Financial advisors known as robo advisors provide online investment advice with or without human participation. It uses an online survey to gather information from clients about their financial goals, current situation, and future ambitions, and then uses the information to automatically offer advise and recommendations.

Investment in the future will be based upon algorithms and patterns charted by Robots. Gulaq provides you with the best robo advisory experience. An investor needs to log in through our portal and give 'Survey'. After this, we will recommend the portfolio according to your risk profile.

Overview

Estee Advisors Private Ltd is a quant-based investment management and execution and services, provider. Estee is a pioneer in building algorithmic investment products and has a strong track record as an investment manager and trade execution services provider in Indian capital markets. Estee is present across three lines of business - Asset Management, Proprietary Trading, and Execution Services.

Estee is a SEBI-registered Portfolio Manager Service (PMS) provider and a registered broker-member with all the major Indian exchanges including NSE, BSE, and MCX-SX. Estee Commodities Private Limited, a wholly-owned subsidiary of Estee Advisors, is a registered broker-member with MCX. Estee's US affiliate, Estee Capital LLC, is a Commodity Pool Operator (CPO) with the National Futures Association (US) which is allowed to solicit funds for Qualified Eligible Participants (QEPs). Estee Capital LLC is also a Registered Trading Member with the Dubai Gold and Commodity Exchange (DGCX) and Singapore Exchange (SGX).

Vision:

Quant based investment products will grow and become a major part of invested assets in emerging markets, including India

Mission

Create a leading provider of algorithmic broking and systematic investment products for India and other emerging markets.

- **Timeline of Company**

History: The Indian market has evolved rapidly over the past decade and increasing sophistication amongst players, regulators, customers, and exchanges has paved the way for market-wide adoption of the latest technology and an increase in market depth, breadth, and efficiency. Recognizing the benefits of algorithmic trading, the Indian stock market regulator SEBI and NSE/BSE offered direct market access (DMA) in India in August 2008.

The first algorithmic trading product was offered by Lehman Brothers on Aug 4, 2008. There was some skepticism initially; however, market participants saw the benefit of the improved infrastructure and the perceptions have significantly changed since then. NSE, BSE, MCX, and MCX-SX provide co-located services and there are well over 100 brokers co-located with these exchanges.

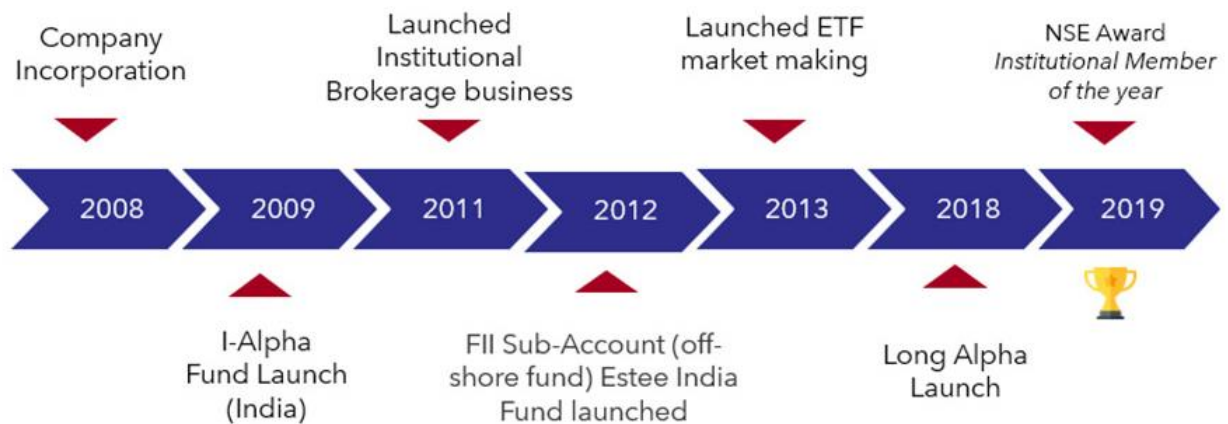


Fig 1: Company Timeline

- **Estee Group Associate Companies**

There are many companies associated with Estee which include:

- Estee Capital LLC

Estee Capital LLC is an associate company of Estee Advisors and was incorporated in August 2011 in Delaware, USA, and has its offices in New Jersey.

Estee Capital is a registered Commodity Pool Operator (CPO) with the National Futures Association (NFA ID: 0443255). It is a fund sponsor and holding company for Estee India Fund, a commodity pool operated by Estee Capital with NFA pool ID: P069682. Estee India Fund is registered as a Foreign Institutional Investor (FII) Sub-account with the Securities and Exchange Board of India (SEBI) with SEBI registration number 20120215. Estee Capital LLC has claimed exemption under CFTC regulation 4.7 and is permitted to solicit funds from qualified eligible persons

(QEPs) as defined under CFTC regulations 4.7(a)(2) and (a)(3).

Estee Capital is also registered as a Trading Member of Dubai Gold & Commodity Exchange (DGCX) and Singapore Exchange (SGX).

- **Estee Management Limited**

Estee Management Ltd is a Collective Investment Scheme Fund Manager registered with the Financial Services Commission in Mauritius. Estee Management has been appointed as the portfolio manager of Estee India Fund and is headed by Sandeep Tyagi.

- **Estee Financial Services Private Limited(formally Estee Commodities Pvt Ltd)**

Estee Financial Services Private Limited (CIN: U51909HR2012PTC054035) is a wholly-owned subsidiary of Estee Advisors Private Limited incorporated on 9th March 2012 under the Indian Companies Act and has its offices in Gurgaon, Haryana. It is an AP of Estee Advisors Private Limited in NSE.

- **Estee IFSC Private Limited**

Estee IFSC Private Limited is a member of NSE IFSC and India INX at gift city a registered broker-member vide SEBI Registration Number INZ000099036.

Chapter 2
Literature Survey

2.1 C#

C# is a computer language which is also pronounced as "See Sharp" . This language is type-safe and object oriented. Developer can create a wide range of robust as well as safe .NET applications. C# is from the C family of languages, hence it can also be said that C, C++, Java, and JavaScript programmers will be right at home. In C# 8 and before, this tour provides an overview of the language's major components.

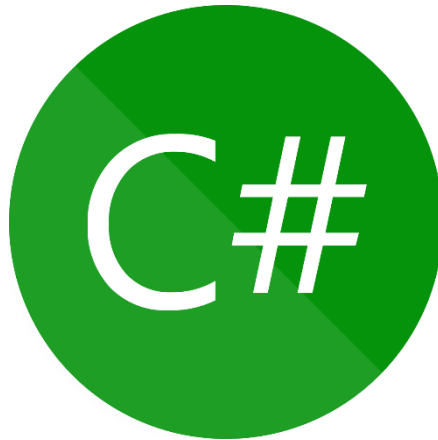


Fig 2: C# Logo

C# is a component-oriented programming language that is object-oriented. C# includes language elements that explicitly support these ideas, making it a natural language for developing and deploying software components. C# has evolved over time to accommodate new workloads and developing programme design methods. C# is an object-oriented programming language at its heart. Types and their behaviour are defined by you.

Several C# capabilities aid in the development of sturdy and long-lasting applications. Garbage collection reclaims memory that has been taken by inaccessible unneeded items. Variables that don't relate to allocated objects are protected by nullable types. Exception handling is a method for detecting and recovering errors that is both structured and extendable. Functional

programming techniques are aided by lambda expressions. The LINQ (Language-Integrated Query) syntax establishes a standard for working with data from any source. Syntax for developing distributed systems is provided by language support for asynchronous operations. The type system in C# is unified. A single root object type is inherited by all C# types, including primitive types like int and double. A set of operations is shared by all types. Values of any type can be consistently stored, moved, and operated on. Furthermore, C# supports both user-defined reference types and value types. C# allows dynamic allocation of objects and in-line storage of lightweight structures. C# supports generic methods and types, which provide increased type safety and performance. C# provides iterators, which enable implementers of collection classes to define custom behaviours for client code.

C# emphasizes versioning to ensure programs and libraries can evolve over time in a compatible manner. Aspects of C#'s design that were directly influenced by versioning considerations include the separate `virtual` and `override` modifiers, the rules for method overload resolution, and support for explicit interface member declarations.

2.2 .NET architecture

.NET, the common language runtime (CLR), and a set of class libraries are used to run C# programmes. Microsoft's implementation of the common language infrastructure (CLI), an international standard, is known as the CLR.

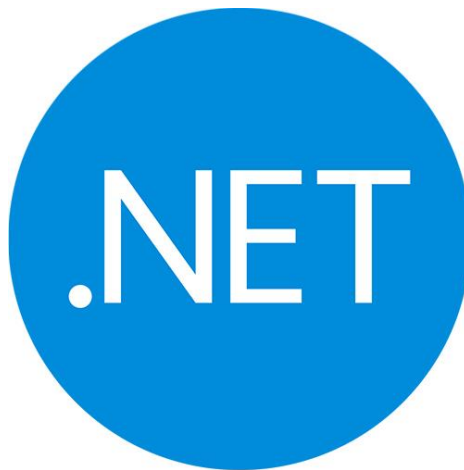


Fig 3: .NET Logo

The C# source code is compiled into an intermediate language (IL) that follows the CLI specifications. The IL code and resources, like as bitmaps and strings, are saved in an assembly, which usually ends in.dll. A manifest is a file that contains information on the types, versions, and cultures of an assembly.

The assembly is loaded into the CLR when the C# programme is run. To transform IL code to native machine instructions, the CLR uses Just-In-Time (JIT) compilation. Other services provided by the CLR include trash collection, exception handling, and resource management. "Managed code" is a term used to describe code that is executed by the CLR. "Unmanaged code" is code that is compiled into a native machine language for a given platform.

The interoperability of languages is a major element of .NET. The Common Type Specification is followed by the IL code generated by the C# compiler (CTS). IL code written in C# can communicate with code written in the .NET versions of F#, Visual Basic, and C++. There are over 20 different languages that are CTS-compliant. Multiple modules developed in different .NET languages can be found in a single assembly. As though they were written in the same language, the kinds might refer to each other.

.NET contains substantial libraries in addition to run-time services. These libraries can handle a wide range of tasks. They're divided into namespaces that offer a wide range of useful features. File input and output, string manipulation, XML parsing, web application frameworks, and Windows Forms controls are all included in the libraries. The .NET class library is heavily used in a typical C# programme to handle standard "plumbing" tasks.

Types and Variables:

Any data in C# has a type that determines its structure and behaviour. A type's declaration can include its members, base type, interfaces it implements, and activities it is allowed to do. A variable is a label that refers to a specific type instance.

In C#, there are two types: value types and reference types. Value type variables directly contain their data. Reference type variables keep track of references to its data, which are

referred to as objects. It's feasible for two variables to refer to the same object when using reference types, and operations on one variable can influence the object referenced by the other variable. Value types ensure that each variable has its own copy of the data, preventing operations on one from affecting the other (except for ref and out parameter variables).

A variable name is an identifier. An identifier is a string of unicode characters with no spaces between them. If it's preceded by @, an identifier can be a C# reserved word. When engaging with different languages, using a reserved term as an identifier can be advantageous.

Simple kinds, enum types, struct types, nullable value types, and tuple value types are the several types of value types in C#. Class types, interface types, array types, and delegate types are the several sorts of reference types in C#.

The following outline provides an overview of the C#'s type system:

- Value Types
 - Simple types
 - Signed integers
 - Unsigned integer
 - Unicode characters
 - Enum types
 - User – The form's types are defined. A separate type with named constants is an enum type. An underlying type for each enum type must be one of the eight integral types. An enum type's set of values is identical to the underlying type's set of values.
 - Struct types
 - User Defined types of the form.
 - Nullable value types
 - Extensions of all other value types with a null value
 - Tuple value types
 - User-defined types of the form

- Reference types
 - Class types
 - Ultimate base class of all other types: object
 - Unicode strings: String, which represents a sequence of UTF-16 code units.
 - User-defined types of the form.
 - Interface types
 - User-defined types of the form interface.
 - Array types
 - Single-dimensional, multi-dimensional, and jagged.
 - Delegate types
 - User-defined types of the form delegate int.

Type declarations are used in C# programmes to establish new types. The name and members of a new type are specified in a type declaration. Class types, struct types, interface types, enum types, delegate types, and tuple value types are all user-definable kinds in C#. Record types, either record structs or record classes, can also be declared. Members of record types are synthesised by the compiler. Records are primarily used to store values and have very little associated behaviour.

2.3 Visual Studio IDE

A feature-rich tool that covers several elements of software development is known as an integrated development environment (IDE). The Visual Studio IDE is a creative starting pad for editing, debugging, and can also be used well for publishing an app. Visual Studio contains compilers, code completion tools, graphical designers, and several other features to aid the software development process, in addition to the conventional editor and debugger that most IDEs include.

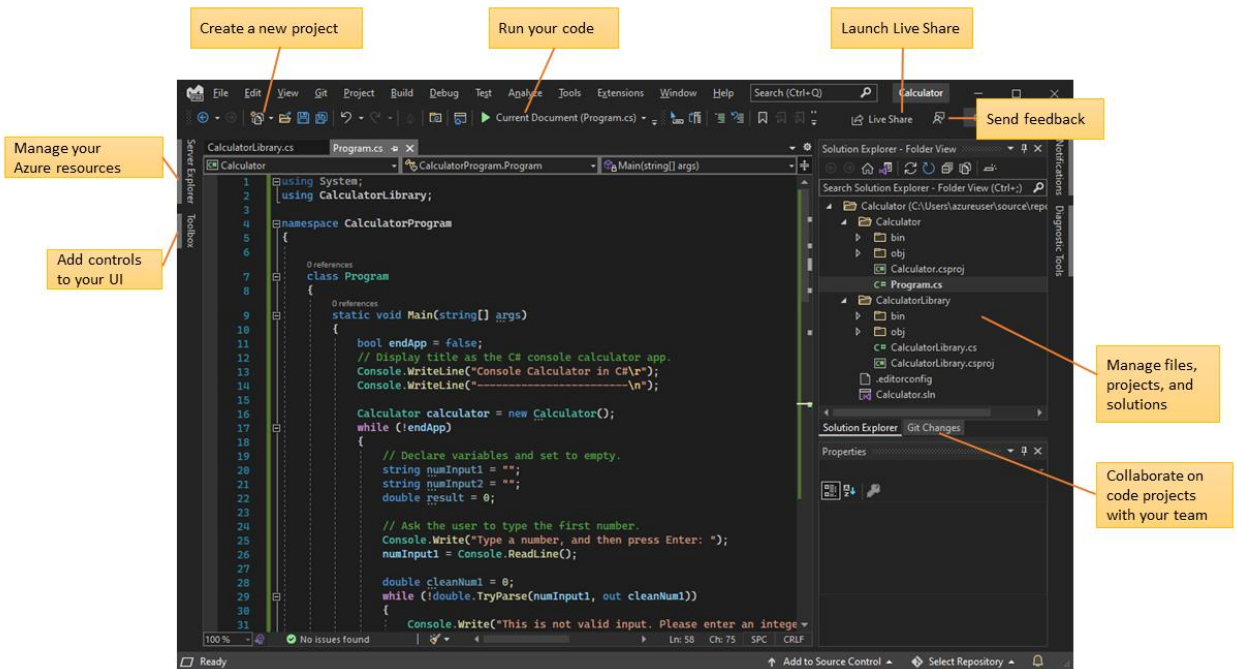


Fig 4: Visual Studio 2015 IDE

The preceding image shows Visual Studio in an open project that shows key windows and a great functionality:

- In Explorer, at upper right, you can view, navigate, and manage your code files. Solution Explorer can help organize your code by grouping the files into solutions and projects.
- The central editor window, where you'll probably spend most of your time, displays file contents. In the editor window, you can edit code or design a user interface such as a window with buttons and text boxes.
- Git Change at lower right, you can track work items and share code with others by using version control technologies like Git and GitHub.

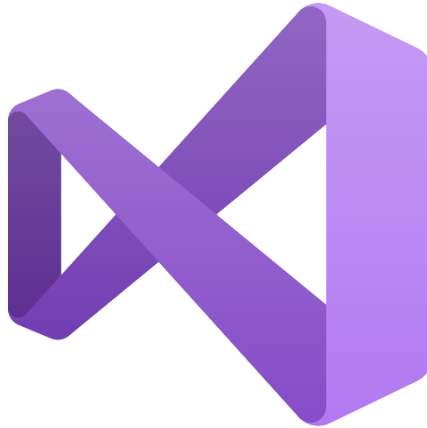


Fig 5: Visual Studio Logo

2.4 Freshdesk

Freshdesk has announced the launch of Freshworks, it is a new umbrella brand that will put the company's growing array of business software under one roof. Freshworks designe the products that can help companies better engage and communicate with the customers and employees, following breakout growth in the company's customer support software and hence the introduction of new products for IT Service Management ("ITSM"), customer relationship management ("CRM"), and cloud call centres.

Freshdesk is an extremely strong tool for keeping track of all work, and its due date system aids in getting all issues resolved before the deadline, as well as providing excellent cross-platform capability.



Fig 6: Freshdesk Logo

Today, the Freshworks suite of products includes:

- Freshdesk: a multichannel customer support helpdesk which allows organizations to collaborate and support their customers through email, phone, websites, forums and social media
- Freshservice: a cloud-based service desk and IT Service Management solution to address the growing complexity of teams' IT support needs through a simple but powerful interface
- Freshsales: a full-featured CRM solution for sales teams handling high-velocity leads
- Freshcaller: a fully functional call center on the cloud

"In 2010, we started Freshdesk as a 'fresh helpdesk' with a dream to make a dent in the world of customer support. While Freshdesk continues to grow exponentially, as a company, we moved beyond customer service by offering innovative products in the ITSM, CRM and call center domains. As we expand our vision and build more exciting products, we believe this is the right time to create a new brand that allows us to tell our multi-product story better," said Girish Mathrubootham, CEO & Founder of Freshworks. "Today, I'm happy to announce that we are rebranding the company as Freshworks. We're not in this just to change the way businesses do customer support, but to refresh the way they do business. Our goal is to build a company that is loved by employees, customers and shareholders alike."

Until now, businesses have had few options for business software, turning to all-in-one, cumbersome legacy solutions across the organization. These solutions are not only expensive, but also require long implementation cycles and are extremely difficult to use without expert training, neither of which are afforded by growing companies. At the same time, enterprises are also tired of wasting time and resources on trying to make everything work together. Freshworks offers a product portfolio that is easily implemented and affordable for companies of all sizes.

"For us, integrating customer support, sales and IT is critical to providing the best customer experience possible," Lenskart's COO and Founder, Amit Chaudhary, stated. "Freshdesk was introduced in 2015, and Freshsales was introduced last year, and both have had a significant impact on how we engage with clients and internally. Freshworks is actually redefining how organisations, even enterprises, think about software."

Freshworks' objective is to help organisations better engage and communicate with their customers and workers with refreshing business software, which has been used by over 100,000 firms in 145 countries. Freshworks' integrated software products ensure that all teams are working together in sync, whether they're sharing customer data and insights across sales and support teams or fast onboarding and setting up new staff.

To learn more or sign up, visit <https://www.freshworks.com>.

Freshworks

Freshworks Inc. is the parent company for the Freshdesk, Freshservice, Freshsales, and Freshcaller family of products. The company's products are meant to work together to promote collaboration and enable teams connect and communicate with their customers and coworkers more effectively. Freshworks Inc., which was founded in October 2010, is backed by Accel, Tiger Global Management, CapitalG, and Sequoia Capital India. Freshworks is headquartered in San Bruno, California, with offices in India, the United Kingdom, Australia, and Germany. Over 100,000 clients use the company's cloud-based SaaS products around the world, including Honda, Bridgestone, Hugo Boss, University of Pennsylvania, Toshiba, and Cisco.

2.5 Bugzilla

The most robust, featureful and mature defect-tracking system is named as Bugzilla, or bug-tracking system. Defect-tracking from which Bugzilla is the leading systems allow teams of developers to keep track of outstanding bugs, problems, issues, enhancement and other change requests in their products effectively. Simple defect-tracking capabilities are often built into

integrated source code management environment such as Github or other web-based or locally-installed equivalents.

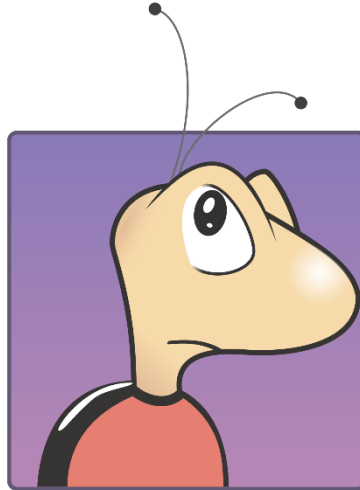


Fig 7: Bugzilla Logo

We find organizations turning to Bugzilla when they outgrow the capabilities of the systems - for example, because of the wanted workflow management, or bug visibility control (security), or custom fields.

Bugzilla is both free in terms of freedom and free in terms of cost. The majority of commercial defect-tracking software providers levy exorbitant licencing fees. Bugzilla, despite being free, includes a number of features that both its paid and free counterparts lack. As a result, Bugzilla is used by hundreds of thousands of companies around the world.

Bugzilla is a web-based system that requires installation on your server in order to utilise. The installation, on the other hand, is not difficult. Bugzilla is a programme that manages bugs.:

- Under active development.
- Used in high-volume, high-complexity environments by Mozilla and others
- Supported by a dedicated team
- Packed with features that many expensive solutions lack

- Trusted by world leaders in technology
- Installable on many operating systems, including window, Mac and Linux.

A Brief History of Bugzilla:

When mozilla.org first came online in 1998, one of the first products that was released was Bugzilla, a bug system implemented using freely available open-source tools. Bugzilla was originally written in TCL by Terry Weissman for use at mozilla.org to replace the in-house system then in use at Netscape. The initial installation of Bugzilla was deployed to the public on a mozilla.org server on April 6, 1998.

After a few months of testing and fixing on a public deployment, Bugzilla was finally released as open source via anonymous CVS and available for others to use on August 26, 1998. At this point, Terry decided to port Bugzilla to Perl, with the hopes that more people would be able to contribute to it, since Perl seemed to be a more popular language. The completion of the port to Perl was announced on September 15, 1998, and committed to CVS later that night.

After a few days of bake time, this was released as Bugzilla 2.0 on September 19, 1998. Since then, a large number of projects, both commercial and free have adapted it as their primary method of tracking software defects. In April of 2000, Terry handed off control of the Bugzilla project to Tara Hernandez. Under Tara's leadership, some of the regular contributors were coerced into taking more responsibility, and Bugzilla began to truly become a group effort. In July of 2001, facing lots of distraction from her "real job," Tara handed off control to Dave Miller, who is still in charge as of this writing.

2.6 VI Editor

Vi Editor understanding is how the vi Editor works in Unix. Several ways are there to edit files in Unix. Editing files with the use of screen-oriented text editor vi is one of the best ways. This great editor enables to edit lines in context with other lines of the file.

Improved version of the vi editor which is names as the VIM has been made available now. Here, VIM stands for Vi Improved.

vi is generally considered the de facto standarrd in Unix editors because –

- It's available on all the flavors of Unix system.
- The implementations are very similar across the board.
- Requires few resources.
- More user-friendly as compared to other editors.

One can use the vi editor to edit an existing file or to make a new file from scratch. One can make use of editor to just read a text file.

For starting of the vi editor the commands that can be used are:

- Vi filename
- Vi -R filename
- View filename

You will notice a tilde (~) on each line following the cursor. A tilde represents an unused line. If a line does not begin with a tilde and appears to be blank, there is a space, tab, newline, or some other non-viewable character present.

You now have one open file to start working on. Hence, to proceed further, few important concepts are required.

Operation Modes:

While working with the vi editor, we usually come across the following two modes-

- **Command mode:** It enables to perform administrative tasks such as saving the file, executing the commands, moving the cursor, cutting and pasting the lines or words, as well as finding and replacing. In this mode, whatever you type is interpreted as a command.
- **Insert mode:** This mode enables you to insert text into the file. Everything that's typed in this mode is interpreted as input and placed in the file.

vi always starts in the command mode. To enter text, you must be in the insert mode for which simply type i. To come out of the insert mode, press the Esc key, which will take you back to the command mode.

Hint – If you are not sure which mode you are in, press the Esc key twice; this will take you to the command mode. You open a file using the vi editor. Start by typing some characters and then come to the command mode to understand the difference.

The vi has the capability to run commands from within the editor. To run a command, you only need to go to the command mode and type `:! command`.

For example, if you want to check whether a file exists before you try to save your file with that filename, you can type `:! ls` and you will see the output of ls on the screen.

You can press any key (or the command's escape sequence) to return to your vi session.

2.7 MobaXterm

MobaXterm is your ultimate toolbox for remote computing.



Fig 8: MobaXterm Logo

MobaXterm is a kind of single Window application. But still being a single window application the functions present in it are tailored for the IT administrators, programmers and pretty much all users that need to handle their remote jobs in a more simple fashion. MobaXterm is a portable exe file that contains all of the necessary remote network utilities for the Windows desktop. It works right out of the box. Some plugins can be used to extend MobaXterm's functionality, such as adding Unix commands.

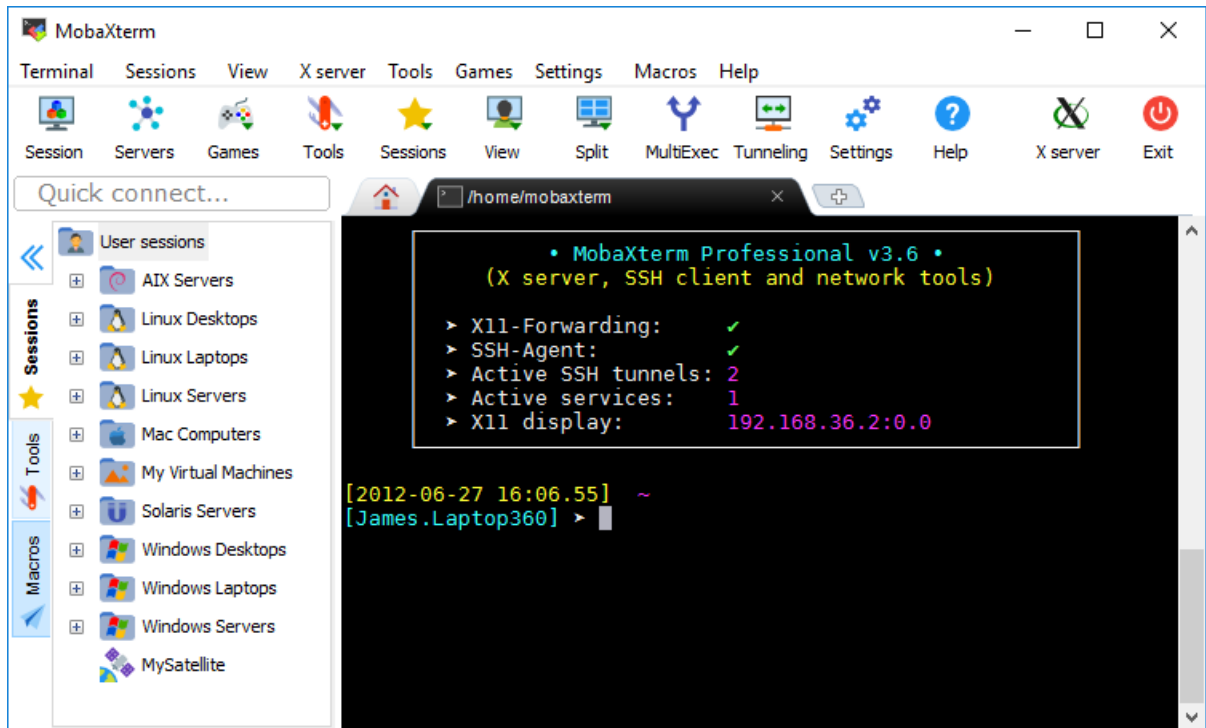


Fig 9: MobaXterm Screenshot

MobaXterm also contains the file explorer which also provides a lot of functionality. By right-clicking on sessions in the left MobaXterm sidebar, you can modify, remove, transfer, import, or export them. You may also build a desktop shortcut to launch a session or a set of sessions automatically when MobaXterm starts up.

The multitab environment allows you to work with many terminals or remote sessions at the same time. You can toggle between "multitab" mode, "2-terminals" mode and "4-terminals" mode by clicking on the "Split" button.

Another extremely important feature of MobaXterm is the "Multi-execution" option. This mode allows you to see all of your terminals at once and write commands to all of them at the same time: pressing a keyboard key will write the same letters on all of your terminals at the same time. By pressing the "MultiExec" button, you can enter this mode.

An X11 server is embedded into MobaXterm executable. This X server is based on the well-known Xorg server and compiled in order to run natively on the Windows platform. The X server

supports OpenGL rendering and the latest extensions [in order to](#) allow you to run up-to-date applications through it. This embedded X server can also be used to render remote desktops: just create a new "XDMCP" session, then select your settings, verify that your remote server supports XDMCP and start your session. If this does not work or if you need some better security, you can also access your remote desktop through a secure SSH connection: start a new SSH session and in the "Remote environment" setting, choose the correct desktop you want to run [a the](#) remote server.

[MobaXterm](#) features a great terminal emulator based on the efficient PuTTY program (by Simon Tatham). This terminal allows you to run remote commands through SSH, telnet, [rlogin](#) or serial connections, but also to run Unix commands on your local Windows computer thanks to the use of dedicated plugins. There are many Unix commands which can be used inside the local terminal when using the "[CygUtils](#)" or other dedicated plugins: [ssh](#), [telnet](#), [rlogin](#), [rsh](#), [rsync](#), [wget](#), [vim](#), [corkscrew](#), [httping](#), [fdupes](#), [iperf](#), [mathomatic](#), [xhost](#), [xprop](#), [xdpinfo](#), [xmodmap](#), [skill](#), [Xorg](#)...

[MobaXterm](#) comes with useful Unix command-line utilities, but also built-in graphical tools such as a fast picture viewer, a [developers](#) text editor, a file/folder comparison tool, a ports analyzer and a packet capture tool. The feature which is in our opinion the most useful may be the graphical SSH-browser: when you log to a remote server using SSH, a graphical SSH-browser pops up on in the left sidebar allowing you to drag and drop files directly from or to the remote server using your secure SSH connection and SFTP or SCP protocol.

Session manager

You can store your connection settings in bookmarks that are stored in your INI file. Sessions can be accessed easily through the corresponding menu in the top toolbar or in the left sidebar, but you can also create a desktop shortcut to each session [in order to](#) launch them easily.

2.8 Microsoft TFS (Team Foundation Server)

For source control, Microsoft TFS has been around for over a decade. And it's changed dramatically since its inception in 2005. There are individuals in the industry who have committed their entire lives to TFS management. Because it was fairly difficult to administer, such expertise was required.



Fig 10: TFS Logo

Hands-on management was critical to deal with database changes added small features.

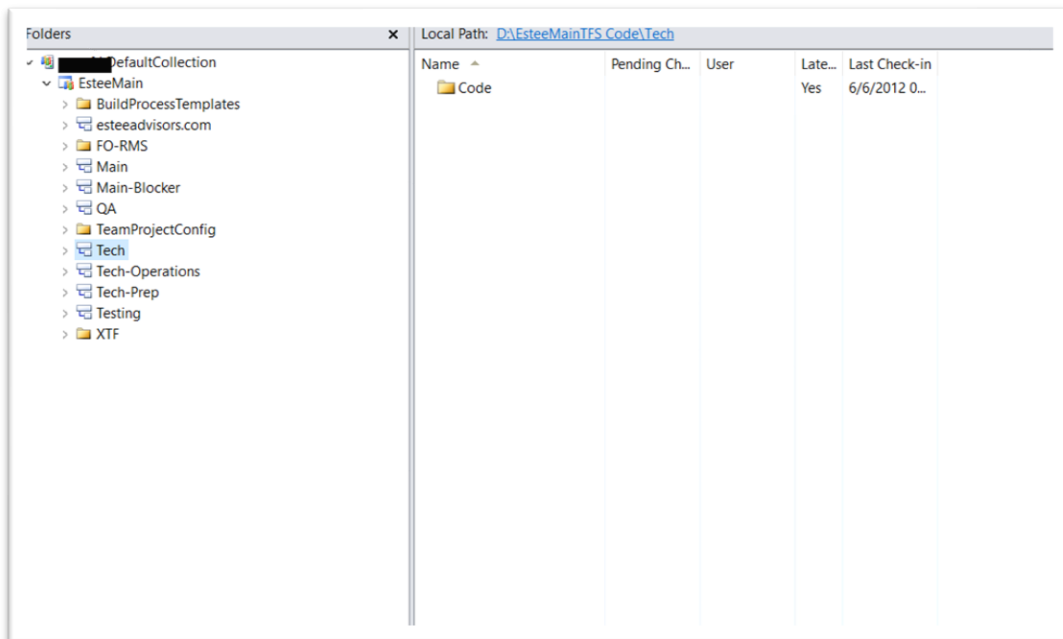


Fig 11: TFS Screenshot

Testing in TFS steps was difficult because there was relationship between bugs and failed tests. TFS was complicated to use, because it was created when user experience (UX) was not a top priority for Microsoft. When comes to TFS testing, there was no to what was happening.

Project Management

In 2012, TFS morphed into a tool that helped teams manage their software development projects using Agile. One of the primary reasons it became popular for Agile was because companies already had Microsoft licenses. It was a simple choice. This made it easier for teams to adopt and support new Agile software development process.

Microsoft also created a dedicated TFS ALM tool. This light-weight tool could manage some requirements, but it lacked a robust and flexible model that can support large-scale global teams.

On the version control side of things, TFS has had a couple of different approaches. Team Foundation Version Control (TFVC) was one centralized version control system. This system saved historical ~~jdata~~ using path-based branches created and maintained on a Windows server.

TFS in the Cloud

Many people continue to run older on-premises versions of TFS. But Microsoft has been moving all the software it makes to the cloud. Some obvious examples include Office 365 and Azure, along with numerous smaller initiatives. For many, Microsoft's cloud move was unexpected, but the benefits are clear. Azure has become a fast, secure, and integrated platform for Windows shops.

It seems like no one ever expected Microsoft to openly embrace open source. But when you look at it closely, it makes sense. A big part of Microsoft's strategy has been to win the hearts and minds of developers. Open Source has become popular with both developers and the companies they work for. As a result, Microsoft has put Git front and center in Visual Studio's Source Code Control (SCC) integration.

TFS Evolution: What Is the Difference between VSTS and TFS?

So, TFS has morphed again. Today, VSTS (Visual Studio Team Services) is Microsoft's Git code hosting, collaboration, and DevOps platform. It offers features comparable to other cloud-based Git tools and is the default version control system in Visual Studio. The on-premises version of VSTS is now called TFS. It looks nothing like the TFS of old. Microsoft's GVFS (Git Virtual File System) runs on Windows servers and turns Git into a centralized, server-based system.

You can continue to use your legacy TFVC with Visual Studio and other popular VCS systems. Perforce Helix Core continues to have very strong integrations with the popular integrated development environment (IDE). Helix Core's plugin for Visual Studio (P4VS) has been downloaded almost 400,000 times.

TFS for Source Control: Evaluating the Git Takeover

But even after all of this, yet another morph for TFS for source control may be on the horizon with Microsoft's recent acquisition of GitHub, the actual home of [open source](#) software. Public announcements from the leadership of both companies say they will continue to operate "business as usual", serving their respective communities.

This being said, we all know things can change quickly in the technology marketplace. It seems very likely that, at some point in the future, GitHub and VSTS will merge. It isn't much of a stretch to think that NuGet and other tools might make their way over to this combination. It will be interesting to see how Microsoft version control will evolve.

If you are still using an older on-premises version of Microsoft TFS, consider joining many other companies who are taking advantage of this turning point to evaluate. Is Git and the new VSTS really the right set of technologies for your team?

If you have:

- Large numbers of developers.

- Very large files (and a lot of them).
- Geographic locations.
- Automation needs.

Chapter 3

System Development

System Development started with the research on the requirements.

3.1 Research

The research started with the learning of the programming language c#. Before had a good knowledge and industry experience of the android app development in android with the use of the programming language java. Hence while learning the coding in C# various concepts of the java app development were relatable. It was a really good experience learning a new programming language. The c# is very much similar to c as well and during the initial days of B-tech, a lot of effort was put into learning programming. Then started learning Microsoft Visual Studio. It is a great software for development as a lot of features are present that minimize the development efforts a Lott. The most liked feature was it's debugging as a lot of extra features were provided in that. The major liked part of debugging was the runtime capability. It provides the functionality that viewing the value of the variable and even changing them while the app is running. The research was carried out on user Control and the option of adding fragments in the user form. Then learned how the vi editor and basic Linux commands.

3.2 Analysis

The requirement was to develop windows form for the utilities to be added to the existing software named QTP. Talking about the requirements, two utilities were required to be developed, one was the Live Stream Data parser and the other one was Tick Publisher. Tick is the name given to the packet received from the stock exchange. The ticks are received and the proper system is there in the company to properly handle the received tick and upload that data to the different tables and create the files that are used by a different process that is also called jobs which perform many other works which are used internally by the company. The live stream data is the file that is generated daily by one of the jobs. The file contains data for several categories that included position Map, Price Map, Strategy Risk Map, and Model Price Map. Each value needed to be displayed in the table and when required they needed to be published on the specific IP and a specific IP port which again is fetched from the system of the company and is not hardcoded. The two categories that need to be published on the UDP

socket are the price map and the Model price Map.

For the Second utility, the work is the same as it was in the case of Live Data Parser but the difference is it provides the functionality to select the entries to publish from the data parsed from the file. But in the Tick publisher, One can manually enter the Last traded price with Estee Id to publish and Model Price along with the Estee Id to publish.

3.3 Design

The design was started with firstly understanding the requirements in deep. After the requirements were clear and a dry run through the code running and debugging was carried out the planning of the UI and the algorithm started.

Tick Publisher Utility:

This utility is required to publish 2 different types of prices in the UDP Socket.

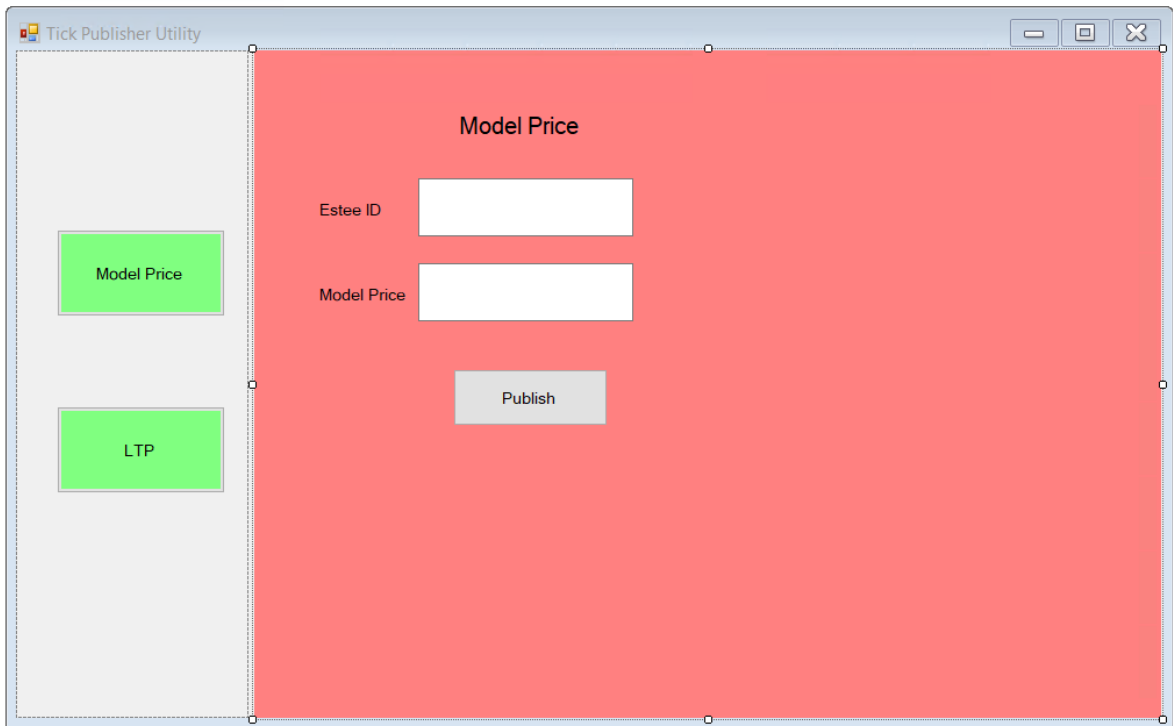


Fig 12: Tick Publisher UI

Hence to achieve this requirement of 2 different prices planned 2 different options to select and different forms to open in both of the cases. Added some colors to make it look good.

Live Stream Data Parser

To properly access the file and make it convenient for the user design was planned to include the option to enter the path manually and also to select the path from the system by selecting the file from the file explorer. Then the option to select different categories that are: Position Map, Price Map, Strategy Risk Map, and Model Price Map. Adding to this the number of exchanges present in the selected file is also displayed on the top of the screen.

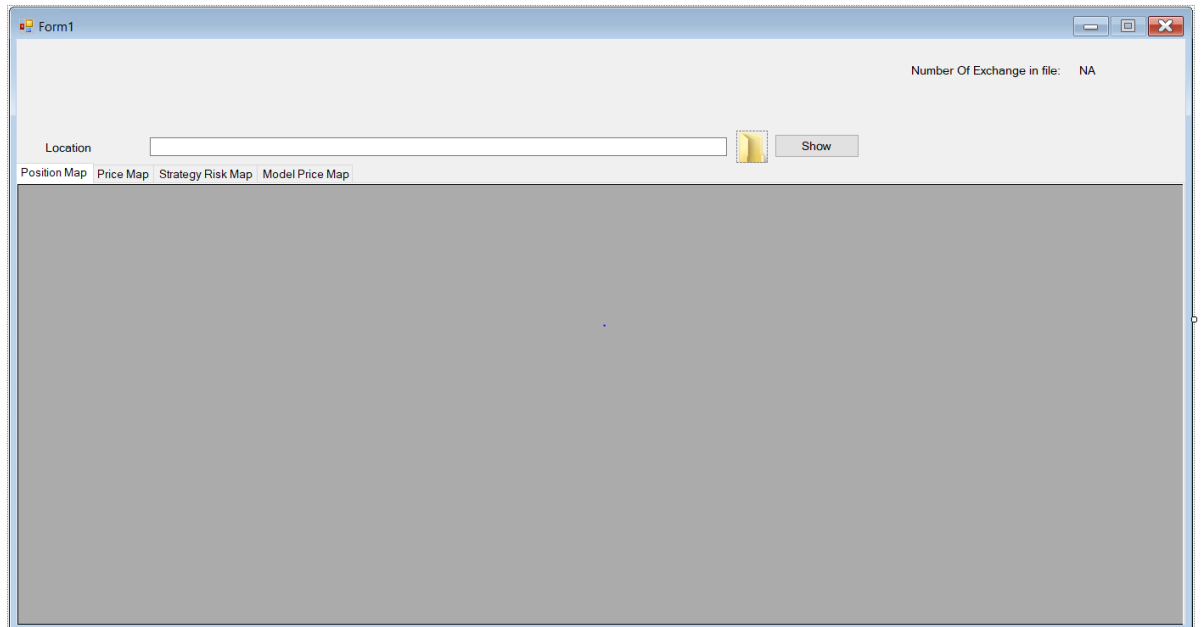


Fig 13: Live Stream Data Parser UI

3.4 Tools and Technologies Used

The languages used in this project are C# and SQL. And the software used for the project is Microsoft visual studio 2015, SQL Studio, and Notepad ++. Visual Studio 2015 was used for the development. On Windows, Visual Studio is the most comprehensive IDE for.NET and C++ developers. Fully loaded and having a bevy of tools and capabilities which elevate and improve software development at every step of the SDLC.

3.5 Development

The development is done by ensuring the optimization of the code for better performance.

Tick Publisher Utility

For the development, the work started with the flow chart of the working of the utilities.

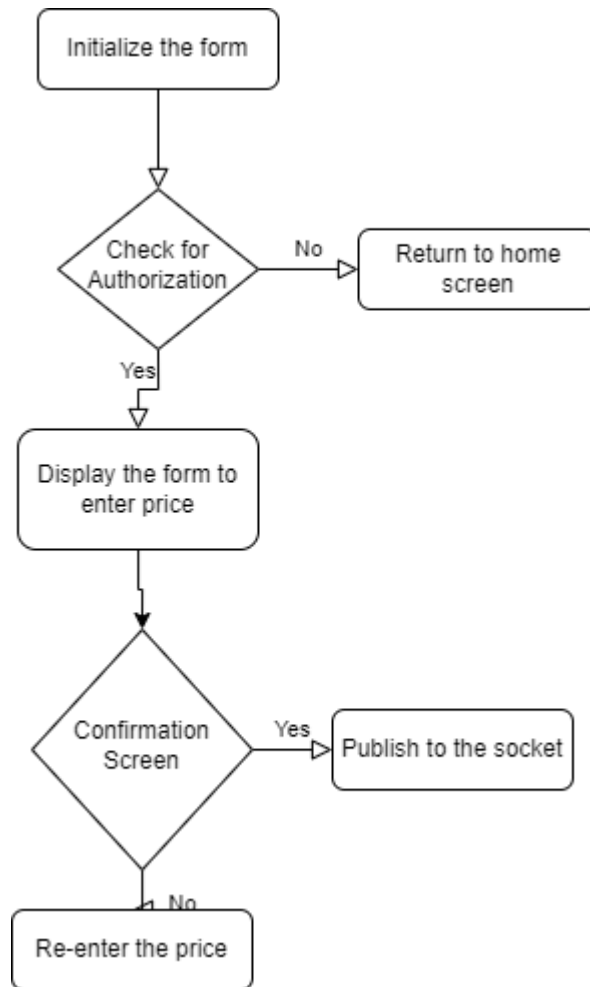


Chart 1: Tick Publisher Flow Chart

Then the coding part started, first the UI was created. Ui creating in the visual studio is a very easy task. The UI development becomes easy in the visual studio because the drag and drop functionality is very good. So dragged all the required items and arranged them on the form managing the size of the form as per the requirements and even disabling the maximize button to ensure the integrity. Then the click listeners were added to all the buttons to add the functionality on them. After this process, the values were added to the database so that in future

the permission can be given for the use of that utility to the authorized user. The values were also added in the enum class of the visual studio project.

For the 2 different options to publish the price user controls were used. While doing the work one more thing that was majorly learned was that the user control is available in the drag-drop menu only after the project is rebuilt after creating the file. Then the UDP socket was created with the help of the existing classes present in the software. Hence, the utility for the tick publisher is completed.

Live Stream Data Parser

For the Live Stream Data Parser, the flow chart was constructed.

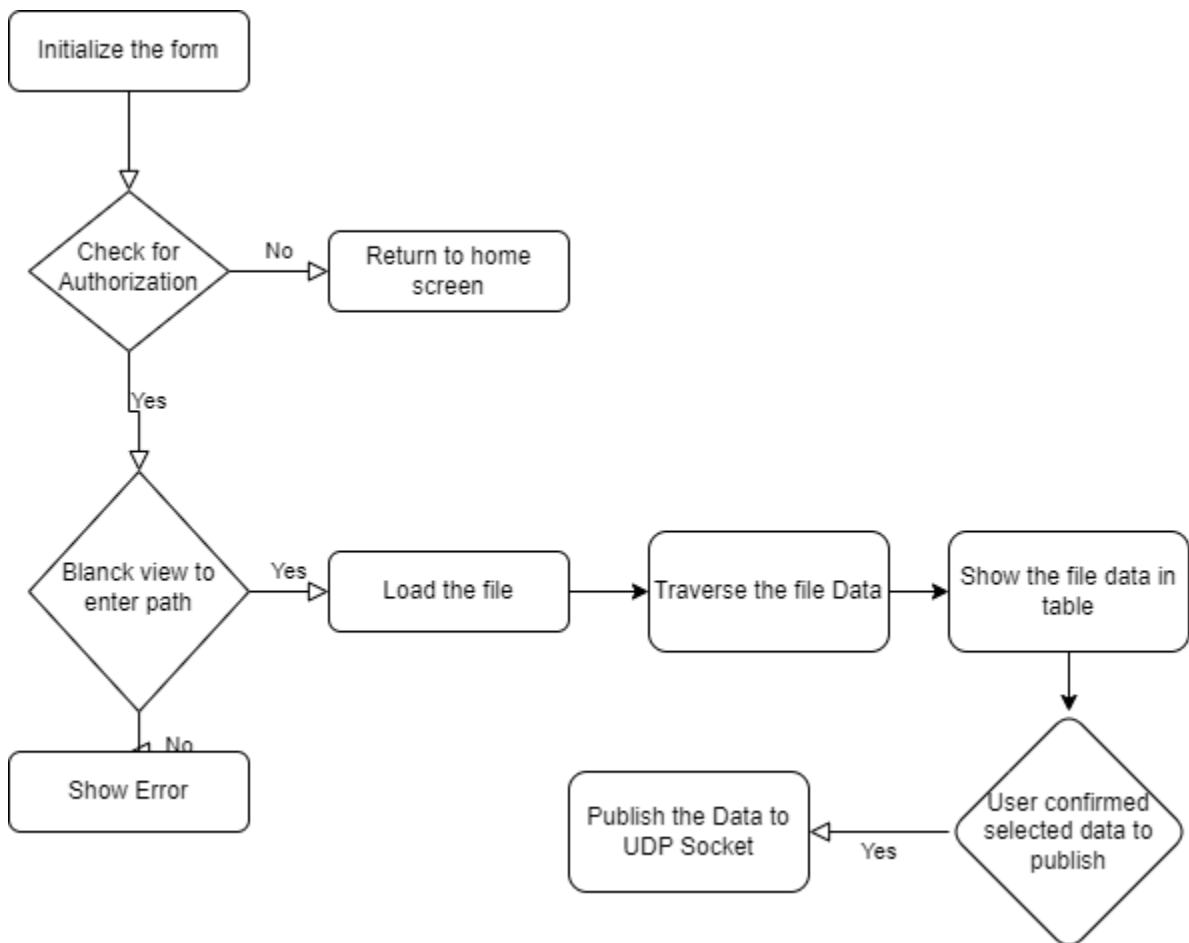


Chart 2: Live Stream Data Parse Flow Chart

Starting with the development part for the Live Stream Data parser first, the UI was developed.

For the UI development, the work first started with the addition of tab control in which the option of Position Map, Price Map, Strategy Risk Map, and Model Price Map options was created. In each of the tabs, a data grid view was added. At the top of the screen, a text was created that is going to display the number of exchanges present in the file that is opened. An input text field was added to enter the path where the file is present. Next to the entered text filed for the path enter icon of the folder was added on which the action of opening file explorer is added to select the file from the system and the path will be automatically added rather than manually entering it in the text field.

For the writing of code to add functionality to all the added components first the click listeners were created for all the options. Now the file handling was used to read all the data from the selected file of the Live Stream Data. The data parsing was done as per the scheme/dictionary of the one other project whose reference is present in this project i.e Allocator. Now several nested custom class objects are created and the data is assigned to that objects which are received by traversing the live stream data. The tables are created and the data is inserted into that table row by row. That table is displayed upon data grid view.

Rows can be selected from the tables to publish them on the UDP Socket similar to what the previous utility for the Tick Publisher was created.

Linux Debugging

There were some python scripts which were having constraints that resulted in them not running properly hence used the VI Editor to adjust the constraints and make the scripts run properly.

Jobs Debugging

Various tickets were assigned to find the issues in the various types of jobs and various

exchanges. For all of them learned how the C# code is written and did the line-by-line debugging with dry runs as well as demo runs on the test database. Also did some of the edits in the stored procedures of the SQL database of the company.

Chapter 4

Conclusions

My internship at Estee Advisors involved learning skills in languages and tools like C#, Visual Studio, .Net, GitHub, TFS, Linux, moboXtream, and Vi Editor. Some of the technologies we also used in our day-to-day work are C#, .Net, SQL, Bugzilla, Freshdesk, etc. Apart from that, this internship has also taught me soft skills like working culture in a corporate firm, and communication within a team. I can call it my most improved skill by joining daily meetings to discuss new strategies to improve and pipeline to implement them. Although these meetings were very short time-wise (ie. 10-30 mins) but informatively, they were sufficient enough to get us hooked for the day. We were assigned seniors from the company that managed our work and guided us in the right directions. They gave us feedback on every turn and helped us in the very best way possible. The one thing that would like to add in this report about the seniors that managed us is that they not only thought us how to work efficiently and be more productive to the company but also how to manage work-life balance, how to overcome the frustration of working on the time constraint tasks.

5.1 Result

This internship was indeed a pool of knowledge, not only have I gained knowledge in Development and debugging but I have also learned about how the development of any project takes place, how the team works, how the work of each employee is tracked, how work is distributed between different teammates, what are the different stages of development, what are the technical problems that one faces in the development of any project, what all things are required before the development of any project, what the codebase should be like and what norms need to be followed in the development. How the machines are used for the different servers and databases. How can one control many different systems from just one system. Different types of apps in .net include windows forms, console applications, etc.

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