Industrial Training Report

Undertaken at Net Solutions India Private Limited

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

BACHELOR OF TECHNOLOGY
(Computer Science and Engineering)

PUNJABI UNIVERSITY, PATIALA

SUPERVISED BY :-   **SUBMITTED BY :-**

Dr. Gaurav Gupta (Asst.Professor, CE)   **Name** : Janak Raj

                                                                                Roll No. : 11901151

DECLARATION

I **Janak Raj** hereby declare that I have undertaken Six months Industrial Training at **Net Solutions India Pvt. Ltd.** during a period from 23rd Jan 2023 to 23rd July 2023 in partial fulfillment of requirements for the award of degree of **BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING** from UCOE,

PUNJABI UNIVERSITY PATIALA. The work which is being presented in the training report submitted to the Department of **COMPUTER SCIENCE AND ENGINEERING** at **UCOE, Punjabi University** is an authentic record of training work.

Industry Coordinator   Faculty Coordinator

ACKNOWLEDGEMENT

I would like to express my sincere gratitude and appreciation to the Net Solutions India Pvt. Ltd. team for allowing me to intern as an engineering intern. I am extremely grateful for the chance to gain hands-on experience and work alongside a team of professionals in the engineering field.

I also express my appreciation to Mr.Akash Lomas,Project Manager for his guidance, support, and constructive feedback during my first two months at Net Solutions India Pvt. Ltd.. His insight and knowledge are invaluable in my development as an engineer, and I feel fortunate to have him as my team Manager.

I sincerely appreciate and thank Mr.Rajnish Kumar Sharma, Team Mentor, for his guidance and support throughout my internship. His invaluable insights and expertise in the field of Dotnet technology are helping me learn and grow immensely during my time at the company. I am especially grateful for his willingness to take the time to answer my questions and offer constructive feedback on my work, which is greatly improving my skills as a developer.

I am honored to have the opportunity to work with such a dynamic and innovative company and look forward to continuing learning and development throughout the remainder of my internship. Lastly, I am deeply grateful to my parents, family, and friends, who provided valuable suggestions and support to help me complete the project. Without their active encouragement, the entire project would not have been possible.

ABSTRACT

This internship report highlights the major works carried out by me in terms of academic and non- academic perspective. The scope of this document is to identify and describe the analysis carried out, projects completed, experience gained by me as an intern in the past two months (Jan-Feb 2023).

I'm currently doing my internship at Net Solutions India Pvt. Ltd., Net Solutions is a Digital Experience Agency. We help businesses worldwide with Digital Business Transformation, Digital Product Development in the form of personalized web and mobility solutions, and Experience Design. We are proud to count Fortune companies as clients. We have hundreds of talented technologists and analysts working in different timezones across our global offices in the USA, Canada, the UK, and India.

I found myself lucky to get a chance to work in such an environment that Net Solutions India Pvt. Ltd. has provided. I got introduced to some of the new terms, new technologies and new programming languages.

The tasks that I worked on during my internship certainly helped me by increasing my practical knowledge depth. They were very helpful to me for learning different software development frameworks.

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1. INTRODUCTION

Objective

This report has been prepared as a requirement of the internship program of the degree Bachelor of Engineering in Computer Science. The report is intended to reflect my achievements, project involvements and professional growth during the internship period.

Scope

This report gives an insight of the experience that I got in my workspace at Net Solutions India Private Limited.

2. COMPANY'S PROFILE

Net Solutions is a digital experience agency that helps brands leverage design, engineering and analytics to build consumer focused products and platforms.

Established in the year 2000, we are a 400+ people strong, organisation. Our clients include leading brands like Unilever, Microsoft, Harvard Business Review, IMG, Mothercare and Euro Car Parts as well as successful global startups.

Net Solutions has also been featured in publications of international repute like Wall Street Journal, Economic Times, Hindustan Times, Inc Magazine and Brandon Hall Research.

We consult, design & build your business for tomorrow's success today. Things have evolved quickly since we launched nearly two decades ago, but here's what's stayed the same: Ambitious businesses succeed by delivering transformative digital experiences to customers . We're the partner you can count on for results-driven digital products & platforms.

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Net solution provides services in many IT fields like Digital Customer Experience, Mobile App Development, Software Product Development, UX/UI Design, eCommerce Development, Kentico, Magento, Software Testing, Digital Customer Engagement, AWS and Google Cloud, Content Management System, Cloud Consulting, Microsoft Dynamics 365, Design Consultant, Custom Software, Android, iOS, Digital Transformation, and SaaS Development

About Dotnet Technology

The **.NET Framework** is a software development framework developed by Microsoft that provides a runtime environment and a set of libraries and tools for building and running applications on Windows operating systems. The framework includes a variety of programming languages, such as C#, F#, and Visual Basic, and supports a range of application types, including desktop, web, mobile, and gaming applications.

1. The .NET Framework includes two main components: the Common Language Runtime (CLR) and the .NET Framework Class Library. The CLR is responsible for managing the execution of code written in any of the supported languages, while the class library provides a large set of pre-built functions and classes that can be used to create a wide range of applications.
2. One of the key advantages of the .NET Framework is its support for a variety of programming languages. This means that developers can choose the language that best fits their needs and expertise, while still being able to use the same set of libraries and tools provided by the framework.
3. Another advantage of the .NET Framework is its support for a variety of application types. The framework includes libraries and tools for creating desktop, web, mobile, and gaming applications, which makes it a versatile choice for developers working on a wide range of projects.
4. The .NET Framework also provides a number of features that help improve the security, reliability, and performance of applications. These include features such as code access security, automatic memory management, and just-in-time (JIT) compilation, which helps improve the speed of application execution.

.NET is a software framework that is designed and developed by Microsoft. The first version of the .Net framework was 1.0 which came in the year 2002. In easy words, it is a virtual machine for compiling and executing programs written in different languages like C#, VB.Net, etc.

It is used to develop Form-based applications, Web-based applications, and Web services. There is a variety of programming languages available on the .Net platform, VB.Net and C# being the most common ones. It is used to build applications for Windows, phones, web, etc. It provides a lot of functionalities and also supports industry standards.

11 Programming Languages which are designed and developed by Microsoft are:

- C#.NET
- C++.NET
- F#.NET
- WINDOWS POWERSHELL
- IRON PYTHON
- ASML(Abstract State Machine Language)
- VB.NET
- J#.NET
- JSCRIPT.NET
- IRON RUBY
- C OMEGA

Advantages of .NET Framework:

1. Multi-language support: The .NET Framework supports a variety of programming languages, including C#, F#, and Visual Basic, which allows developers to choose the language that best fits their needs and expertise.

2. Cross-platform compatibility: The .NET Framework can run on multiple operating systems, including Windows, Linux, and macOS, which provides flexibility in developing and deploying applications.

3. Large community: The .NET Framework has a large and active community of developers who have created a wide range of resources, including libraries, tools, and documentation.

4. Security: The .NET Framework includes a variety of security features, such as code access security and digital signatures, which can help protect applications from malicious attacks.

5. Productivity: The .NET Framework includes a large set of pre-built libraries and tools that can help developers save time and improve productivity.

Disadvantages of .NET Framework:

1. Windows dependency: Although the .NET Framework can run on multiple operating systems, it was originally designed for use on Windows operating systems, which means that it may not be the best choice for cross-platform applications.

2. Large footprint: The .NET Framework has a large installation footprint, which can make it difficult to deploy applications on systems with limited storage or bandwidth.

3. Licensing: Some versions of the .NET Framework require a license, which can add to the cost of developing and deploying applications.

4. Performance: While the .NET Framework provides good performance for most applications, it may not be the best choice for high-performance applications that require low-level access to hardware or complex algorithms.

5. Learning curve: Although the .NET Framework is designed to be easy to use, it still has a learning curve, especially for developers who are new to the platform or to object-oriented   programming   in   general

Main Topics covered undered these 2 months

➢ **HTML**

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup language for creating Web pages
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

➢ **CSS**

- CSS stands for Cascading Style Sheets
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External stylesheets are stored in CSS files

➢ **javascript**

- JavaScript is the world's most popular programming language.

- JavaScript is the programming language of the Web.

- JavaScript is easy to learn.

- JavaScript is a cross-platform, object-oriented scripting language used to make webpages

- interactive (e.g., having complex animations, clickable buttons, popup menus, etc.).

- JavaScript is **a scripting language that enables you to create dynamically updating content,**

- **Controls multimedia, animate images, and pretty much everything else**. (Okay, not everything, but

- It is amazing what you can achieve with a few lines of JavaScript code.

➤ **Bootstrap**

- Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly website.
- It is absolutely free to download and use.
- It is a front-end framework used for easier and faster web development.
- It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others.
- It can also use JavaScript plug-ins.
- It facilitates you to create responsive designs.

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➤ **C#**

- C# is pronounced "C-Sharp".

- It is an object-oriented programming language created by Microsoft that runs on the .NET Framework.

- C# has roots from the C family, and the language is close to other popular languages like C++ and Java.

- The first version was released in year 2002. The latest version, **C# 11**, was released in November 2022.

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C# is used for:

- Mobile applications
- Desktop applications
- Web applications
- Web services
- Web sites
- Games
- VR
- Database applications
- And much, much more!

Uses:

- It is one of the most popular programming language in the world
- It is easy to learn and simple to use
- It has a huge community support
- C# is an object oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs
- As C# is close to C, C++ and Java, it makes it easy for programmers to switch to C# or vice versa.

➢ MVC

The MVC (Model-View-Controller) is an application development pattern or design pattern which separates an application into three main components:

1. Model
2. View
3. Controller

Model

Model: Model is a part of the application which implements the logic for the data domain of the application. It is used to retrieve and store model state in a database such as SQL Server database. It also used for business logic separation from the data in the application.

View

View: View is a component that forms the application's user interface. It is uses to create web pages for the application. An example would be an edit view of a Products table that displays text boxes, drop-down lists and check boxes based on the current state of a Product object.

Controller

Controller is the component which handles user interaction. It works with the model and selects the view to render the web page. In an MVC application, the view only displays information whereas the controller handles and responds to the user input and requests.

The following image represents the ASP.NET MVC Design Pattern:
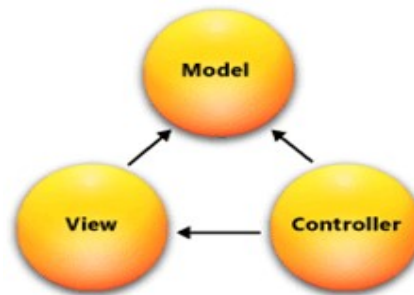
➢ LINQ

- Language-Integrated Query (LINQ) is a powerful set of technologies based on the integration of query capabilities directly into the C# language. LINQ Queries are the first-class language construct in C# .NET, just like classes, methods, events. The LINQ provides a consistent query experience to query objects (LINQ to Objects), relational databases (LINQ to SQL), and XML (LINQ to XML).
- LINQ (Language Integrated Query) is uniform query syntax in C# and VB.NET to retrieve data from different sources and formats. It is integrated in C# or VB, thereby eliminating the mismatch between programming languages and databases, as well as providing a single querying interface for different types of data sources.
- For example, SQL is a Structured Query Language used to save and retrieve data from a database. In the same way, LINQ is a structured query syntax built in C# and VB.NET to retrieve data from different types of data sources such as collections, ADO.Net DataSet, XML Docs, web service and MS SQL Server and other databases.
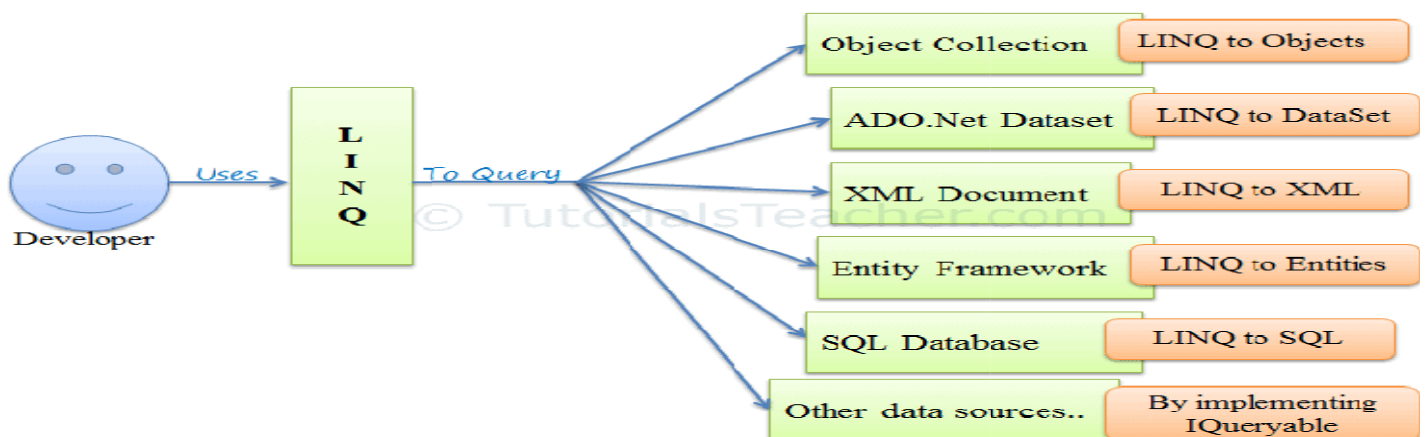
➢ EntityFramework

Entity Framework was first released in 2008, Microsoft's primary means of interacting between .NET applications and relational databases. Entity Framework is an Object Relational Mapper (ORM) which is a type of tool that simplifies mapping between objects in your software to the tables and columns of a relational database.

- Entity Framework (EF) is an open source ORM framework for ADO.NET which is a part of .NET Framework.
- An ORM takes care of creating database connections and executing commands, as well as taking query results and automatically materializing those results as your application objects.
- An ORM also helps to keep track of changes to those objects, and when instructed, it will also persist those changes back to the database for you.

Features

Following are the basic features of Entity Framework. This list is created based on the most notable features and also from frequently asked questions about Entity Framework.

- Entity Framework is a Microsoft tool.
- Entity Framework is being developed as an Open Source product.
- Entity Framework is no longer tied or dependent to the .NET release cycle.
- Works with any relational database with valid Entity Framework provider.
- SQL command generation from LINQ to Entities.
- Entity Framework will create parameterized queries.
- Tracks changes to in-memory objects.
- Allows to insert, update and delete command generation.
- Works with a visual model or with your own classes.
- Entity Framework has stored Procedure Support

➢ Sql Server

- Microsoft SQL Server or MS SQL Server for short is the query language provided for data definition and manipulation.

- SQL Server is a Relational Database Management Systems which was developed and marketed by the Microsoft company.

- SQL and SQL servers are built as two layers where the SQL server is on the top for interacting with the relational databases.

- MS SQL Server also has T-SQL or Transact-SQL and the main focus of T-SQL is to handle the transactions.

- As it is a Microsoft's developed system, it worked only on Microsoft's environment until it was made available on Linux platforms in the year 2016.

➢ **Project**

I have made a HR Management system project   where the HR can add details of all the candidates, retrieve the detail of any particular candidate, delete any record from the list and edit any information if he/she wants to do it. Here in this project I have used razor syntax of html, a little bit JavaScript, c#, css, entity frameworks, Linq, server side validations, Microsoft sql server management system, Bootstrap etc. Below are the some screenshots of project which I have made in these training period by learning above technologies.

1.To add details of the candidate

2. Displaying all the data by fetching from the database and here we can edit or delete the record by simply click on that buttons.
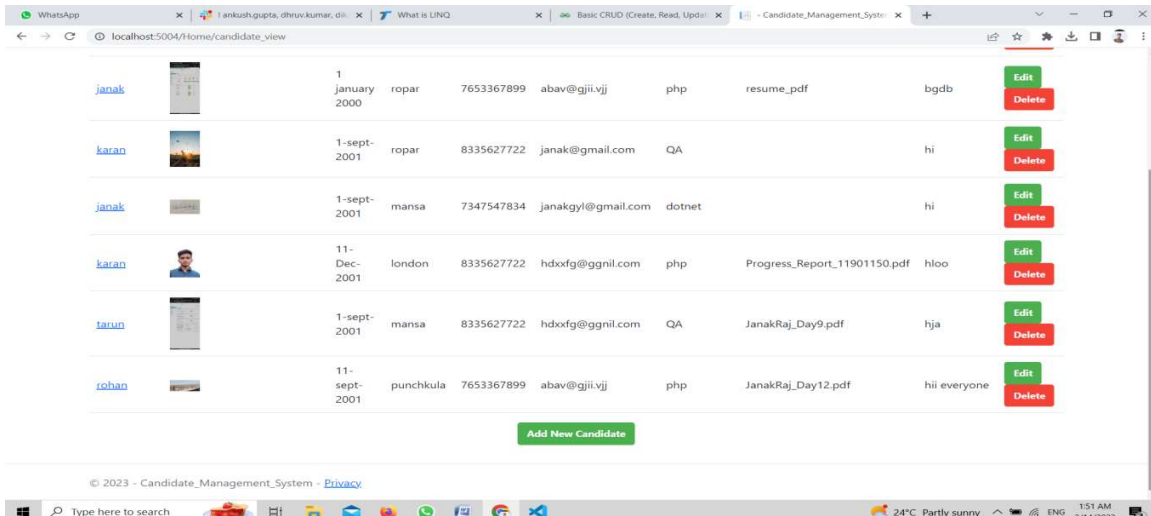
3. Here by clicking on the name of the candidate we can see his all information like these.
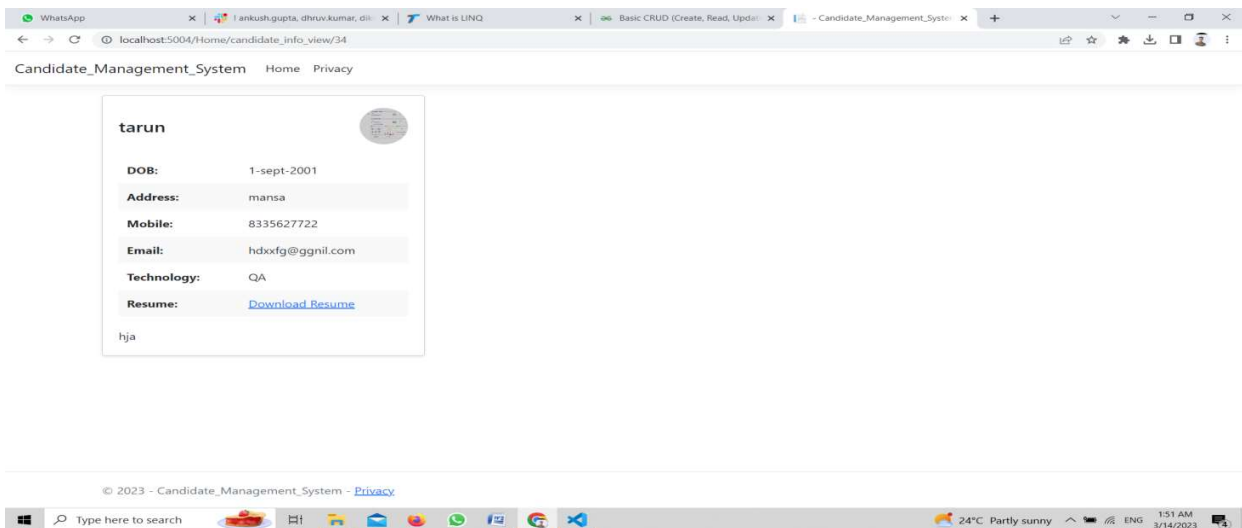
Conclusion

After 2 months of my industrial training in .Net technology I am pleased to report that I have made significant progress in my learning and development. During this time, I have had the opportunity to work on a variety of projects and tasks, gaining valuable experience in full stack development and software engineering.

I am pleased with the progress I have made during the first two months of my industrial training. I look forward to continuing to learn and develop my skills over the remaining four months of my training, with the goal of becoming a proficient and skilled Full Stack Developer.