ASSIGNMENT 1 FRONT SHEET

Qualification	BTEC Level 5 HND Diploma in Computing		
Unit number and title	Unit 30: Application Development		
Submission date		Date Received 1st submission	
Re-submission Date		Date Received 2nd submission	
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Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature	

Grading grid

P1	P2	P3	M1	M2	D1

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A.   Design Tool:

I.   Draw.io

1. Definition

Draw.io is proprietary software for making diagrams and charts. The software allows you to choose from an automatic layout function, or create a custom layout. They have a large selection of shapes and hundreds of visual elements to make your diagram or chart one-of-a-kind. The drag-and-drop feature makes it simple to create a great looking diagram or chart.

Draw.io has options for storing saved charts in the cloud, on a server, or network storage at a data center, depending on your needs.
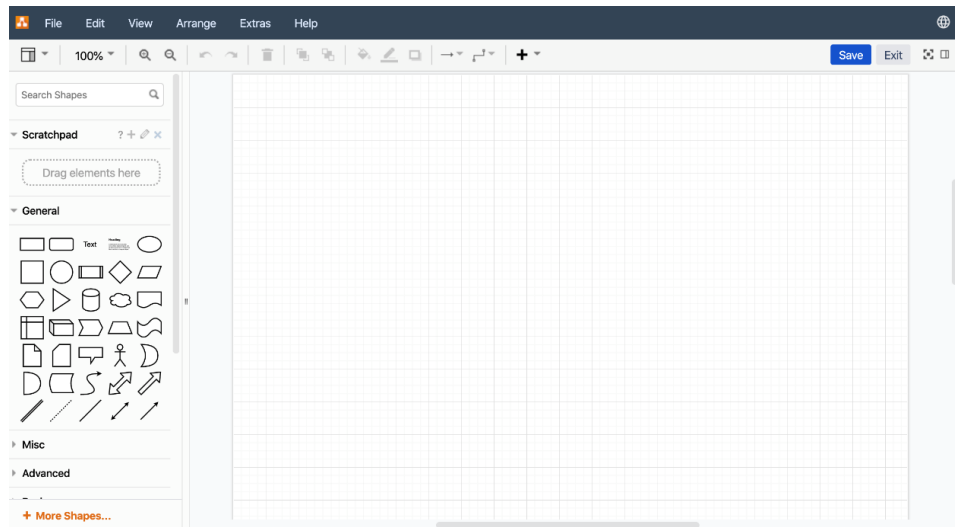
2. Reason why I choose Draw.io

I have used Draw.io to draw maps that meet the needs of the project such as Use Case, EDR. The first benefit it brings is its very user-friendly interface and ease of use. The second benefit is that it is completely free to help me save money on my project. It also integrates with Google drive which automatically stores all changes so that when something goes wrong I still don't lose my design.

II. Tool Adobe XD User interface:

1. Definition

Adobe XD is a vector-based user experience design tool for web apps and mobile apps, developed and published by Adobe Inc. It is available for macOS and Windows, although there are versions for iOS and Android to help preview the result of work directly on mobile devices. Adobe XD supports website wireframing and creating click-through prototypes.

2. Reason why I choose Draw.io

- Prototypes of Android, iOS and web applications.
- Can make wireframes of that project screen. After applying transition effects and animations, we can elaborate on the details to enhance the look and feel.
- After the prototype has been made, we can actually run that app in different screen sizes all sizes of Android Mobiles, iOS Mobiles and also web applications.
- Some basic designing particles are provided by Adobe XD library so that we can use it directly in our project.

- While this process of prototyping the whole project in Adobe XD and then testing it can take a long time, it will decrease the chance of design failure to almost zero.

B.   Front-End Technology

I.   HTML/CSS

1. HTML

HTML is the language for describing the structure of Web pages. HTML gives authors the means to:

Publish online documents with headings, text, tables, lists, photos, etc.

Retrieve online information via hypertext links, at the click of a button.

Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.

Include spread-sheets, video clips, sound clips, and other applications directly in their documents.

With HTML, authors describe the structure of pages using markup. The elements of the language label pieces of content such as "paragraph," "list," "table," and so on.

Figure 2: HTML

2. CSS

CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of

devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation.

Figure 3: CSS

3. Reason why I choose HTML and CSS

HTML (the Hypertext Markup Language) and CSS (Cascading Style Sheets) are two of the core technologies for building Web pages. HTML provides the structure of the page, CSS the (visual and aural) layout, for a variety of devices. Along with graphics and scripting, HTML and CSS are the basis of building Web pages and Web Applications. Almost any website must use HTML and CSS, and so does my project.

II. JavaScrip

1. Definition

JavaScript is a scripting or programming language that allows you to implement complex features on web pages — every time a web page does more than just sit there and display static information for you to look at — displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. — you can bet that JavaScript is probably involved. It is the third layer of the layer cake of standard web technologies. It is the third layer of the cake layer of standard web technologies besides html and css
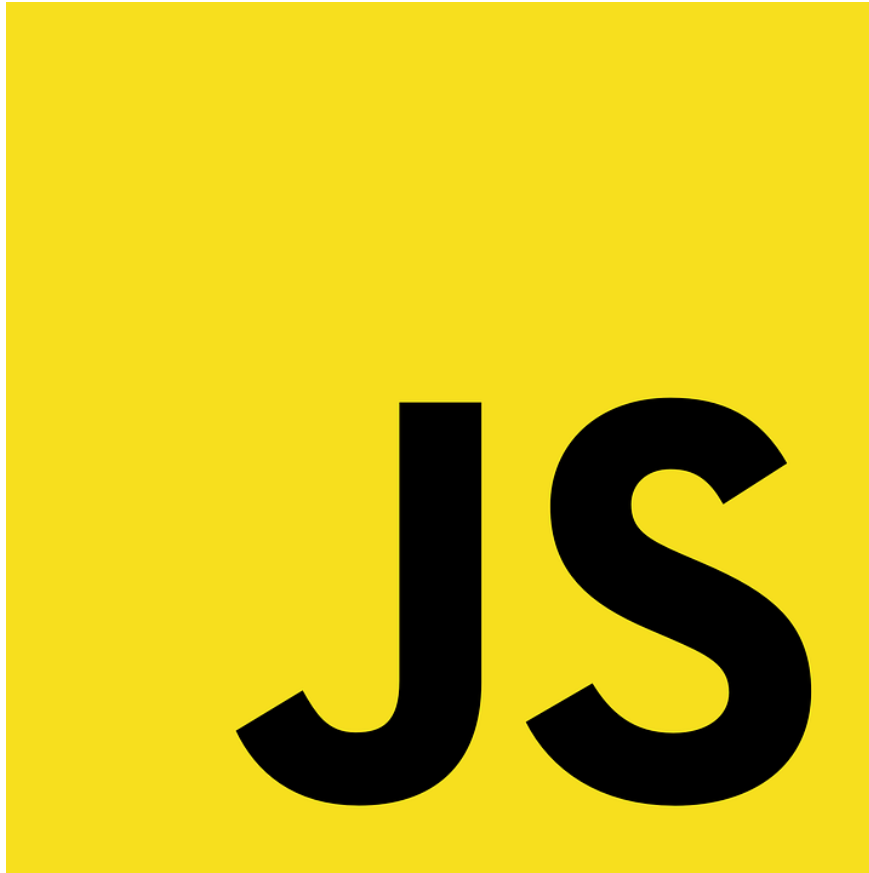
2. Reason why I choose JavaScrip

The reason I chose JavaScrips is because it helps me turn my site from a static web to a dynamic one. In addition it also provides the ability to create rich interfaces. Moreover, it also helps me to collect user information automatically and instantly without reloading the page or accessing the database.

III.   Bootstrap Framework

1. Definition

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Figure 5: Bootstrap

2. Reason why I choose Bootstrap

The reason I choose to use Bootstrap is because it saves a lot of completion on the project. It also doesn't require any complicated knowledge. As long as I know a little bit about HTML, CSS, JavaScrips and jQuery it will help me create a professional website. In addition, it also supports in Responsive to help create an interface suitable for users when used on all devices to increase interaction with users.

C. Back-End Technology

I. Programing Language - C#

1. Definition

C# is a modern, general-purpose, object-oriented programming language developed by Microsoft and approved by European Computer Manufacturers Association (ECMA) and International Standards Organization (ISO).
C# is designed for Common Language Infrastructure (CLI), which consists of the executable code and runtime environment that allows the use of various high-level languages on different computer platforms and architectures.
Advantages of C#
- Object-Oriented Language
- Automatic Garbage Collection
- Cross Platform
- Backward Compatibility
- Better Integrity and Interoperability

Applications of C#
- Games using Unity

- Web Applications Client-Server Applications
- Windows Applications Applications that run on desktops
- Web Services Applications
- Console Applications
- Class Libraries

Figure 6: C#

2. Reason why I choose C#

The reason I chose C # is because it is a primary language because it is a highly optimized language. In addition, the C # language also has a .NET Framework that supports a lot of things that make it easy to complete a project. Besides, there is a very powerful MVC model due to the inclusion of C # in HTML which makes it convenient to create Front-End. Overall, this is a very good plan for this project.

II. Operating System – Microsoft Windows

1. Definition

Microsoft Windows, also called Windows and Windows OS, computer operating system (OS) developed by Microsoft Corporation to run personal computers (PCs). Featuring the first graphical user interface (GUI) for IBM-compatible PCs, the Windows OS soon dominated the PC market.
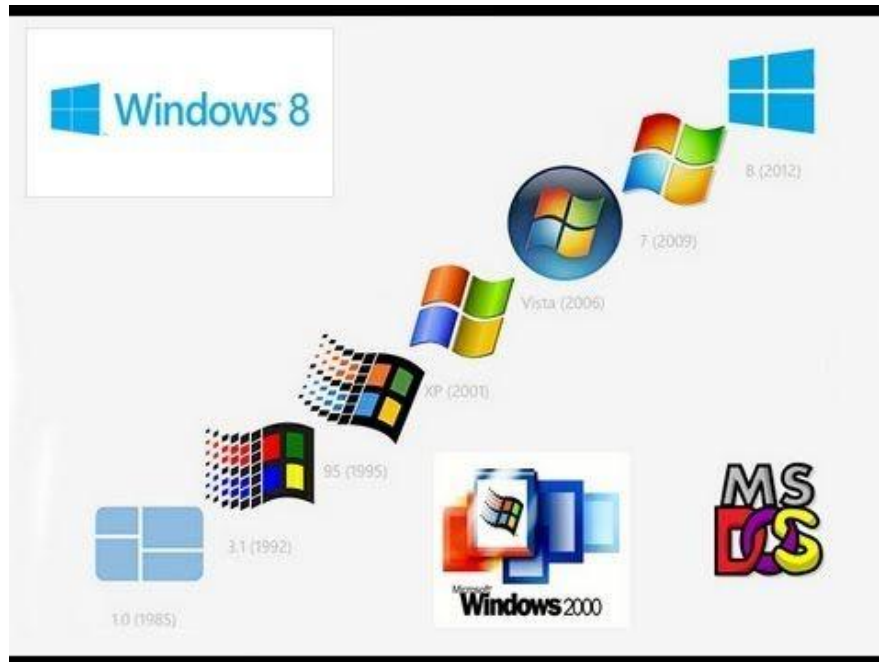
2. Reason why I choose Windows

I chose Microsoft Windows for my project because it is very popular and can be easily compatible with many different devices. In addition, it is extremely easy to use, just take a little time to get used to it, you can completely use. In terms of security, it may not be as good as Linux or Max OS but the developers and fix the vulnerabilities for free. Finally, the most prominent advantage of the Windows operating system is its rich application. Since most applications are based on Windows OS-compatible platforms, its applications are richer than other operating systems.

III.   Database - SQL server

1. Definition

As a basic definition, Microsoft SQL Server is a Related Database Management System(RDBMS) that runs on the SQL programming language. It has the capacity to support a huge variety of transaction processing applications as well as business intelligence and analytics in corporate IT environments.
The RDBMS gives you the advantage of working with a table structure based on rows, which allows you to connect data elements and functions. Unlike a Database Management System (DBSM), it enables you to maintain the security, integrity and consistency of the data you're working with.

As with most software, it is important to ensure you or your employees are fully trained on Microsoft SQL. Proper training can help ensure you're not missing out on vital features or losing valuable information due to mismanagement.

Figure 8: SQL Server

2. Reason why I choose SQL Server

The reason that I chose Microsoft SQL Server is because Microsoft SQL Server operates on Windows environment and is the best database to use and develop on .Net framework. It allows me to maintain the confidentiality, integrity, and consistency of the data I'm working on - this helps ensure customer trust in my level of security. Not only that, it also optimizes data accuracy and storage, giving you the benefit of eliminating the need to store duplicate data in a database while I'm working on another computer. . Furthermore, SQL Server uses Policy-Based Management to keep your security policies compliant and up-to-date for easy management and maintenance during use thanks to an efficient data management approach. make sure my data is always available and recoverable in case of other on-site data loss.

IV.   ASP.NET MVC Framework:

1. Definition

ASP.NET is an open-source, server-side web-application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, applications and services.

It was first released in January 2002 with version 1.0 of the .NET Framework and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages. ASP.NET's successor is ASP.NET Core. It is a re-implementation of ASP.NET as a modular web framework, together with other frameworks like Entity Framework. The new framework uses the new open-source .NET Compiler Platform (codename "Roslyn") and is cross platform. ASP.NET MVC, ASP.NET Web API, and ASP.NET Web Pages (a platform using only Razor pages) have merged into a unified MVC 6.

Figure 9: ASP .NET Framework

2. Reason why I choose ASP .NET Framework

The reason I chose the ASP.NET platform for my project is because it is low cost but has very strong language support. ASP.NET is incorporated in a Windows server environment. Not only that, it also provides some great support: basic framework for handling web requests, website template creation syntax, called Razor, for creating dynamic websites in C #, library for popular web templates, such as Model View Controller (MVC), syntax highlighting editor extension, code completion, and other site-specific functions.

V. IIS Web Server:

1. Definition

Internet Information Services (IIS) is a flexible, general-purpose web server from Microsoft that runs on Windows systems to serve requested HTML pages or files.

An IIS web server accepts requests from remote client computers and returns the appropriate response. This basic functionality allows web servers to share and deliver information across local area networks (LAN), such as corporate intranets, and wide area networks (WAN), such as the internet.

A web server can deliver information to users in several forms, such as static webpages coded in HTML; through file exchanges as downloads and uploads; and text documents, image files and more.
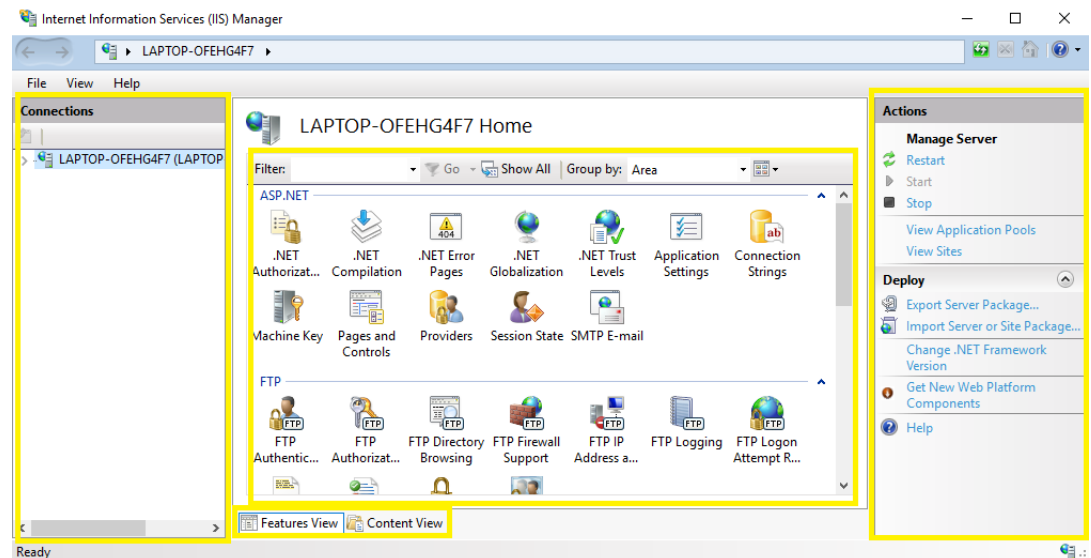

Figure 10: ASP .NET Framework

2. Reason why I choose ASP .NET Framework

The reason I chose IIS is because it provides Windows systems, choosing to use IIS requires the choice of Windows Server, and thus increases the operating costs. Windows is also more susceptible to malware attacks and is known to be a less secure server option. So why can you consider Windows / IIS option on LAMP system. Windows and IIS are supported by Microsoft, while Apache is only supported by the user community. IS supports Microsoft's .NET framework and ASPX scripting. Media package modules are available to allow streaming of audio and video content.

D.   Tools for Source Control Management

I.   GitHub

1. Definition

GitHub, Inc. is a provider of Internet hosting for software development and version control using Git. It offers the distributed version control and source code management (SCM) functionality of Git, plus its own features. It provides access

control and several collaboration features such as bug tracking, feature requests, task management, continuous integration and wikis for every project. Headquartered in California, it has been a subsidiary of Microsoft since 2018. GitHub offers its basic services free of charge. Its more advanced professional and enterprise services are commercial.Free GitHub accounts are commonly used to host open-source projects. As of January 2019, GitHub offers unlimited private repositories to all plans, including free accounts, but allowed only up to three collaborators per repository for free.Starting from April 15, 2020, the free plan allows unlimited collaborators, but restricts private repositories to 2,000 minutes of GitHub Actions per month.As of January 2020, GitHub reports having over 40 million users and more than 190 million repositories (including at least 28 million public repositories), making it the largest host of source code in the world.

Figure 11: GitHub

2. Reason why I choose GitHub

Since in this project we were working in groups of 2 we decided to use GitHub. Here are the benefits that GitHub gives us:

- Performance: Git provides the best performance when it comes to version control systems. Committing, branching, merging all are optimized for a better performance than other systems.
- Security: Git handles your security with cryptographic method SHA-1. The algorithm manages your versions, files, and directory securely so that your work is not corrupted.
- Branching Model: Git has a different branching model than the other VCS. Git branching model lets you have multiple local branches which are independent of each other. Having this also enables you to have friction-less context switching (switch back and forth to new commit, code and back),

role-based code (a branch that always goes to production, another to testing etc) and disposable experimentation (try something out, if does not work, delete it without any loss of code).

- Staging Area: Git has an intermediate stage called "index" or "staging area" where commits can be formatted and modified before completing the commit.
- Distributed: Git is distributed in nature. Distributed means that the repository or the complete code base is mirrored onto the developer's system so that he can work on it only.
- Open Source: This is a very important feature of any software present today. Being open source invites the developers from all over the world to contribute to the software and make it more and more powerful through features and additional plugins. This has led the Linux kernel to be a software of about 15 million lines of code.

E. Software Development Models

I. Waterfall Model

1. Definition

The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.

The Waterfall model is the earliest SDLC approach that was used for software development.

The waterfall Model illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete. In this waterfall model, the phases do not overlap. Waterfall approach was first SDLC Model to be used widely in Software Engineering to ensure success of the project. In "The Waterfall" approach, the whole process of software development is divided into separate phases. In this Waterfall model, typically, the outcome of one phase acts as the input for the next phase sequentially.
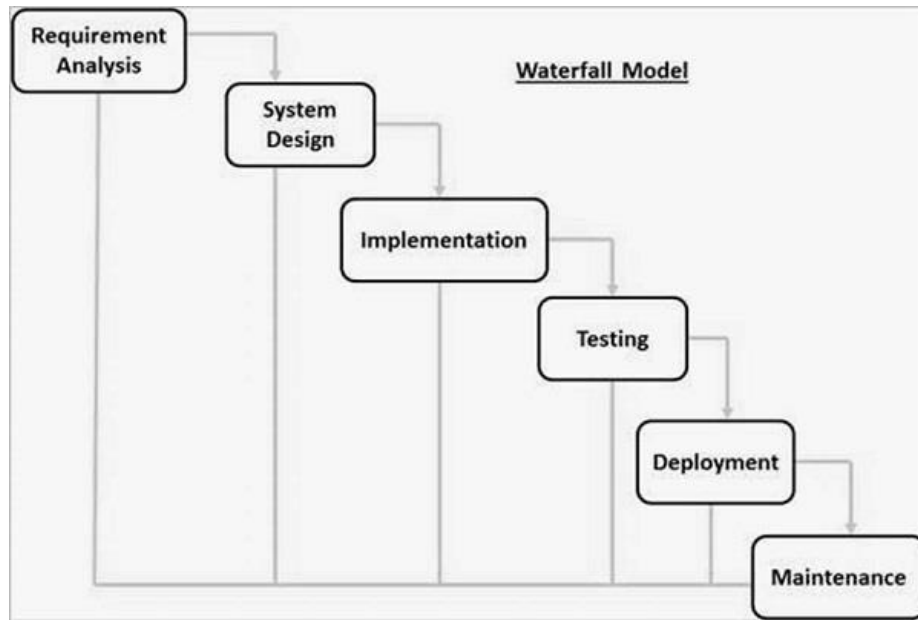
Figure 12: Waterfall Model

2. Reason why I choose Waterfall Model

Here are the reasons why I have to choose to use the Waterfall model for this project:

- Simple and easy to understand and use
- Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- Works well for smaller projects where requirements are very well understood.
- Clearly defined stages.
- Well understood milestones.
- Easy to arrange tasks.
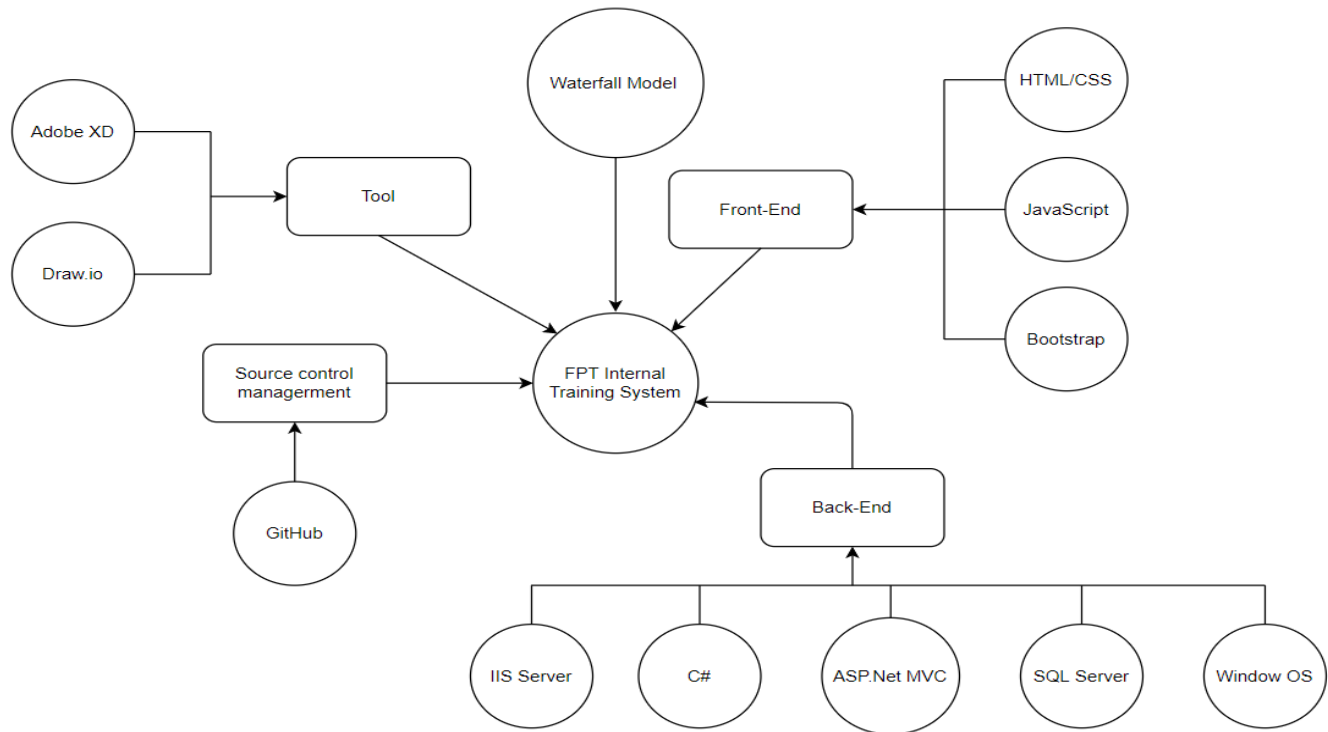- Process and results are well documented.

F.   Conclution

Figure 13: Overview software in FPT project

G.   Reference

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