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Microsoft Technologies Applications in Research

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***Abstract*— Microsoft has always been a world leader in technological innovation, building some of the most important products in both the software and hardware industry. Now, we are continuing that tradition as our world shifts from focusing on the latest gadgets to focusing on the best, most personalized experiences.**

***Keywords*— Microsoft tools, Visual studio and research**

I. INTRODUCTION

1. MICROSOFT VISUAL STUDIO 2010

Microsoft Visual Studio is collection of development tools and various services that are used to create the applications such as ASP.NET web applications, desktop and mobile applications for the Microsoft. It is an IDE from Microsoft, IDE stands for integrated development environment. IDE also used in visual C++, visual C# and visual basic. The various computer programs, web applications, web sites and web services are created by visual studio. Microsoft visual studio has various versions such as 2008, 2010, 2013 and latest version is visual studio 2015. Microsoft software development has various platforms like Windows API, Windows Forms, Windows Presentation Foundation and Windows Store etc these platforms are used by visual studio. Both types of code native code and managed code are produced by this.
Visual Studio has the supporting of both a code editor and code refactoring. Visual studio has an integrated debugger which used as a source-level debugger and a machine-level debugger. Web design, class design, and database design are another built in tools for creating GUI applications. Visual studio includes plug-ins which that improves the functionality by adding toolsets such as editors and visual designers also include the toolsets for another elements of the software development lifecycle. It also includes the support for source control system or revision control it is the method of change of programs and other collection of information [1-10].

Different types programming languages or formal constructed language are also supported by Visual Studio and there exists a language specific service. It allows the code editor and debugger to support any programming language. For example C, C++ and C++/CLI, VB.NET (via Visual Basic .NET), C# (via Visual C#), and F# (via Visual Studio 2010) are built in languages. Visual studio also supports other languages like M, Python, and Ruby. Languages such as XML/XSLT, HTML/XHTML are also included. JavaScript and CSS. Java languages were supported by visual studio in the past [10-15].
Microsoft visual studio is free of cost for students before its 2015 version via program of via Microsoft's Dream Spark. Microsoft provides "Community" editions of visual studio are provided free by Microsoft.
If you have a license then Microsoft provides a free preview of Visual Studio Code. It provides source code and another features, for Linux, OS X, and Windows [15,20].

Features:

Visual studio provides the various types of features for the user to develop computer programs which are as following:

1. Code editor:Visual studio also provides code editor like any another integrated development environment which includes completion of code and highlighting of syntax with the help of Intellisense(code completion of the Microsoft's implementation) for variables, functions, methods, loops and queries. When we develop web sites and web applications the XML, Cascading Style Sheets, JavaScript and other languages are supported by Intelligence. From Visual Studio 2008 onwards versions it can be transparent for the user to see the auto complete suggestions code which appeared in list box [20].
2. Debugger: Debugger which is included in visual studio works on both type of codes (managed code and native code) so it is based on both source-level debugger and machine-level debugger. Debugging applications which can be written in any language are supported by Visual Studio. Code is displayed as the program runs if source code of running is available here and it shows the disassembly in the absence of

source code. The visual debugger also supports programs which are multi-threaded and create memory dumps also. Conditional Breakpoints are also settled by debugger means the execution is stopped when the condition is met. Source code run only one at a time which means code is stepped over [21].

3. Designer: Visual studio has following types of designers:

- Windows Forms Designer: GUI applications are building with the help of windows form design. There are bounds of database or queries which are created by dragging the elements from data source. Window form designer created C# or VB.NET code for applications [22].
- WPF Designer: WPF produced XAML code for the user interface which is compatible with designer oriented products. Visual Studio 2008 version introduced WPF designer. WPF designer also supports drag and drop method as in windows form designer. User interfaces targeting Windows Presentation Foundation which is a graphical subsystem. Windows Presentation Foundation supports data binding and automatic layout management functionality.
- Web Designer: Visual Studio web designer also allow dragging and dropping approach. ASP.NET applications are developed with the help of web designer and it also supports HTML, CSS and JavaScript From Visual Studio 2008 onwards version web designer which is shared by Microsoft Expression Web is used by layout engine. ASP.NET MVC for MVC technology is also supported here.
- Class Designer: Visual studio class Designer is used to edit the classes with the help of UML modeling. C# and VB.NET code produced with the help of class designer. Class designer also generate class diagrams.
- Data Designer: For graphically edit the data base which include tables, relations, keys such as primary keys or foreign keys, constraints etc data designer is used. Data designer also used to design queries from the graphical view.
- Mapping Designer: From Visual Studio 2008 onwards versions LINQ to SQL used this type of designer to design database schemas and the classes which encapsulate the data mapping.

4. Other tools: Visual Studio also includes other types of tools which are as following:
Open Table Browser
Properties Editor
Object Browser
Solution Explorer
Team Explorer
Data Explorer
Server Explorer

2. SQL SERVER 2008

The main objective of SQL Server 2008 is to produce self tuning, maintaining and organization of data management. Firstly SQL server 2008 was released on August 6, 2008 with the version SQL server 2008 now it has other latest versions also such as SQL server 2012 and SQL server 2014. Structured and semi-structured data also supported with the help of SQL server 2008which include digital media formats for pictures, audio, video and other multimedia data. According to the current versions of SQL server such type of multimedia data stored as binary large objects. Specialized functions are also performed here due to the awareness of latest multimedia data.
Senior president of Microsoft Corporation 'Paul flessner' says that SQL server 2008 can be used as a backend for storage for different type of data applications such as date, time, email, name, file and document etc.
Specialized date and time types are the new data types of SQL server which also include special location dependent data type. With the help of new file stream data type semi-structured data and unstructured data provides the better support. This can be used as a reference for any file which is stored on the file stream system. SQL server database stored the structured components. File stream system stored the unstructured data which can be accessed via Win32 file handling or via T-SQL. SQL server also improves the scalability. Date base in SQL server back up and restore also.
SQL Server 2008 also provides better features of compression. Some of the features of SQL server 2008 are as following:

- It helps to improve the scalability and furtherenhanced the indexing of algorithms.
- It also introduced the notion of filtered indexes and for certain user also provides resource governor.
- There are the possibilities of backups and provides the capabilities for transparent encryption of data.
- ADO.NET Entity Framework also supported with the help of SQL server 2008.
- To configuring policies and constraints SQL Server 2008 provides the Declarative Management Framework.

Services:

1) Broker of service: Service broker is used in programming environment and inside an instance. The Broker of service communicates over TCP and IP if instance applications are crossed. With the help of exchange of messages it allows the components to be synchronized together.

2) Replication Services: Replication service means distributing shared files and group of objects. To synchronize the objects of database which are subset

or entity of the object presented SQL server used replication services.

3) Analysis Services: These type of services helps to adds OLAP and data mining features for SQL Server databases. The storage models of data such as MOLAP, ROLAP and HOLAP are supported by OLAP engine. The Analysis Service is a tool which is used by the organizations to analyze the data which is spread across different databases. Analysis services also support the XML.

4) Reporting Services: For various data sources reporting services provides the functionality of reporting. It provides a reporting platform which is based on server. To gather the data from the database of the SQL server SQL Server Reporting Services generates a report generation environment which is administered by interfaces of web. Reports in report service are generated as RDL files.

5) Notification Services: This type of service is used to generate notifications of data driven. Notification services provide a framework for programming to generate the application which sends the notifications.

6) Integration Services: To perform the migration tasks of large amount of data integration services are used. It provides a framework of data integration. Integration services of SQL server is a part of Microsoft SQL server database. Integration services also provide the elements of quality of service on network.

7) Full Text Search Service: It is specialized indexing and querying service. Full text search service is used for unstructured text that is stored in database of SQL Server. This type of service is created on any column.

8) Visual Studio:Microsoft Visual Studio provides intergraded development environment (IDE), which includes native support for data programming. It provides drag and drop facilities.

9) SQL Server Management Studio:SQL Server Management Studio is a Graphical User Interface tool. Management studio generates with SQL Server 2005 and with later versions of SQL server in order to produce the operations such as configuring, managing, and administering and all other component in Microsoft SQL Server. These operations provide both type of tools such as graphical tools and script editor tools that works on Microsoft SQL server.

10) Business Intelligence Development Studio: Business Intelligence Development Studio (BIDS) provides integrated development environment from Microsoft. This is used for generate data analysis and Business Intelligence solutions.

II. Conclusions

Using above tools in well integrated manner all the research problems can be implemented easily. Research problems ranging from conventional problems like algorithm developments, data mining problems, Load balancing problems, cognitive research problems can be tackled easily. Care must be taken in configuring the necessary tools. This configuration plays a vital role in success of research project.

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