CHAPTER 3

TOOLS AND TECHNOLOGIES

In this chapter we have expressed the tool and the methodology to implement in our research, the main concept is to deploy the technical methodology to be deploying it in carrying out the research on the theme of the research. In other words, this chapter provides the tools and technologies used in the analysis of the secured and scalable operational model in real time banking system using cloud computing. The tools, we describe include interfaces to banking sector which is able to provide to a secure and scalable operation for cloud computing. The majority of tools which have been used in our research are Visual Studio 2008, C# language, Jscript, Sql server 05. Apart from this we have used MS-Excel to display the result through the graphs.

3.1 Front End: Visual Studio 2008

Visual Studio is a platform which provides us the way to develop different applications. Here are some of the features of visual studio.

- **Code Editor**
  The code can be made easy to read by the new code editor. It is able to be whizzed in on text by urgent CTRL and scrolling with the mouse controls. Also, when we tick a sign in Visual C# or Visual Basic, all instances of that sign will be robotically tinted. Search-As We Type The new find the way to characteristic provides search-as-we-type hold up for files, types, and members. find the way to enables we to take benefit of Camel casing and underscores to shorten our search text.

- **Call Hierarchy**
  In Visual C# and Visual C++, Call Hierarchy enables from a associate to the associates cannot be navigated by us with the intention of call it and to the
associates that it calls. This is ready to lend a hand for exploring object-oriented code.

- **Debugging**
  The filtering, call-stack penetrating and growth, and federation will be provided by a redesigned threads window. Also it provides an organized be able to be complete and look for breakpoints and share them with other developers. The new similar masses and similar Tasks windows will help us to see in your mind's eye and debug similar code that is written in C++, C#, or Visual Basic.

- **IDE Features Correspond to Project Capabilities**
  Facial manifestation in the IDE, and the Toolbox, now keep up a correspondence to the account of the .NET Framework or Silver brightness that our project targets. As a consequence, types, associates, and controls from assemblies that will aim an earlier description of the .NET structure do not become able to be seen in IntelliSense and produce background collection faults. For instance, if our project targets .NET Framework 2.0 and we use a language feature that .NET Framework 2.0 does not hold up, such as unidentified types, the IDE will blot the code as a fault.

- **Test-First Support**
  In illustration Basic or chart C#, the IDE, for new types and associate a system stubs be able to be produced from their usage earlier than they have been distinct. As a end result, we be supposed to inscribe tests first, and then produce the code which be necessary to compile the tests. in adding together, IntelliSense now provides a suggestion mode that prevents IntelliSense from without human intervention completing a type or member that has not up till now been separate.

- **Application Lifecycle Management**
  The Application Lifecycle Management consumer application will be obtainable now in all versions of illustration Studio. Application Lifecycle administration will contain version organize, work item tracking, build automation, a team
doorway, coverage and business cleverness, Agile preparation Workbooks, and test case organization—the whole thing that we need to work together on our software growth projects can be run. Application Lifecycle association is included in Visual Studio 2010 with one Client Access License (CAL). Additional Client Access Licenses be able to be purchased as per need.

- **Code Generation and Text Templates**
  We will be able to create and use text templates in any version of illustration Studio, devoid of the need for any other component. Generating any kind of text file from our application has been made easier in Visual Studio 2010 with the introduction of Preprocessed Text Templates. hold up for code cohort has also been better from side to side better incorporation with the build scheme.

- **Start Page**
  The illustration Studio 2010 Start Page facial give the impression of being in a new seem and new functionality. A tabbed content area links to a diversity of chosen and categorized knowledge capital. The resources, group of people resources, and a customizable news nourish will be incorporated in MSDN , if we add an recent projects to the list or remove them with a single mouse click than We be able to also install tradition Start Pages from additional room Manager.

- **Extension Manager**
  Illustration Studio extensions be able to be found and installed from the IDE by clicking additional room Manager on the apparatus menu. Downloads and installs community-published extensions be able to be done from the Visual Studio Gallery Web site devoid of r A browser can be opened. It also enables us to uninstall, disable, or re-enable installed extensions.

- **New Project Dialog Box**
  The Visual Studio 2010 includes the same investigate and installs capabilities which are probable dialog box as the Extension Manager, apart from that it searches only for scheme templates and item templates.
• **New Help Viewer**
  The Help spectator was totally redesigned for Visual Studio 2010. Certification can be seen online or, the latest certification can be downloaded on demand, navigate the documentation by using a cut down table of inside, search for exact content by using an better full-text search algorithm, and use a more streamlined F1 scheme to locate content specific to the mission that we are working on.

• **Visual Basic and C# Languages**
  In Visual Studio 2010, the Visual Basic and C# languages will be sustained to move in the direction of characteristic parity. This enables us to choose a verbal communication based on individual preferences because both languages will be evenly capable. This part lists some of the new features in C# and Visual Basic.

• **Visual Basic Language**
  New characteristics contain come in visual basic which be able to cut down syntax and allow to write code faster, auto-implemented properties, implicit line continuance, collection initializes, and single- and multi-statement lambda expressions are built-in in it. Additionally, Visual Basic now supports simplified consumption through type equivalence.

### 3.2 C# Language
The new facial appearance in the C# language be able to work jointly to make simpler programming with the Microsoft Office APIs, There is no need to denote principles for every optional parameter when COM methods is called. With lively support anything be able to be referred, such as return values from COM APIs or active languages, without using an explicit type cast. Indexed properties and not obligatory be able to be modified smooth the progress of access to COM interfaces. Also, type correspondence support simplifies deployment by embed types from primary interlope assemblies (PIAs) directly in our assembly. Illustration Studio 2010 scheme templates and tools are incorporated that can be used to create solutions which extend Microsoft Office 2010 and the 2007 Microsoft Office system. Benefit can be taken of new development features for Office projects; such as expanded Ribbon Designer was supported for Microsoft Office 2010 applications and the ability
to create Office solutions that do not require the Office primary interloper assemblies on end user computers. New deployment facial appearance can be used in Office projects, such as the aptitude to organize Office solutions to all users on a computer.

- **Data Access and Modeling**
  .NET structure 4 enhancements are able to be incorporated to the ADO.NET body Framework that additional will reduce the amount of coding and preservation necessary for data-driven applications. In Visual Studio 2010, suppleness and customization options can be better in the ADO.NET Entity information Model Tools which will create it easier to make unit Framework applications.

- **Web Development:**
  These improvements are incorporated in visual studio 2010 that will velocity up code authoring, make straightforward Web expenditure, and more.

- **Faster Code Authoring**

- **Code Snippets**
  Code oddments are also incorporated in illustration studio for HTML, Script, and ASP.NET wheel to help us to write code earlier. Snippets can be inserted from the Code Snippets Manager or in a roundabout way from IntelliSense.

**3.3 Jscript**

- **Dramatically Improved IntelliSense for Jscript**
  JavaScript is identified as Netscape's cross-platform; it is object-based scripting verbal communication for consumer and server applications. Applications can be created by java script that can run over the Internet. Client applications run in a browser, such as Netscape Navigator, and server applications be able to be run on a server, such as Using JavaScript, a dynamic HTML pages be able to be created by us that process user input and maintain persistent data using special objects, files, and relational databases be able to be maintain also. Through JavaScript's Live Connect functionality, our applications will be able to access Java and CORBA distributed-object applications.
1. IntelliSense at the present parses 2 to 5 times sooner, so there is almost no dispensation delay, still with large script libraries.

2. IntelliSense accepts diverse coding styles so that we get full IntelliSense hold up for almost every library.

4. IntelliSense displays XML certification explanation as we type.

Figure 10 XML documentation
Figure 11 Windows Form Application
Chapter 3 Tools and Technologies 160

- **Simplified Web Deployment**
  By means of Visual Studio 2010, our Web application be able to be packaged and in print in one tick.

- **Web Packages**
  We will be acquainted with MSDeploy as the web deployment apparatus which is enables us to package our Web application for deployment to an Internet Information Services (IIS) Web server. A Web package is a .fasten file or a wallet arrangement that includes the whole thing is included in a folder. Our application is supposed to be hosted by web server, because it contains, IIS settings, database scripts, mechanism, registry settings, and certificates. The Web Deployment Tool has been incorporated into Visual Studio and enables us to generate Web packages with one click.

- **One-Click Publishing**
  By means of the Web Deployment apparatus a server be able to be published, FTP, directory copying, or FrontPage Server Extensions be able to be done in one click. Visual Studio will store all the setting information, such as publish method, server information, and consumer qualifications.

- **Web Configuration Transformations**
  Our scheme is able to be configured to change the web. Arrange file during deployment. When the project is deployed the settings in web. Configure mechanically competition the settings on our clear up, staging, and manufacture servers.

- **JavaScript Debugging Support**
  Since all the developers got frustration with solving java script errors. Debugging the error in java script is very difficult. Now it will be made simpler visual studio 2008 with java Script debugging. Break points can be set up and the java Script can be run step by step and the local variables can be watched when debugging the java script is being done and solution explorer provides java script document navigation support.
• **Nested Master Page Support**
  Nested master pages concept is supported by visual studio2005 with .NET 2.0, but the problem with this Visual Studio 2005 that pages based on nested masters can’t be edited using WYSIWYG web designer.

• **LINQ Intellisense and Javascript Intellisense support for silverlight applications**

![Figure 12: var in LINQ](image)

Visual Studio 2008 is most happy part for NET developers who contain intelligence to support for java script. Life becomes easy when writing client side validation, AJAX applications and also when writing Silver light applications will be done.

**Intellisense Support:** When we are writing the LINQ Query VS provides LINQ query syntax as tool tips.

• **Organize Imports or Usings:**
  Since many days It was being waited for this feature even in VS. Now VS contains Organize Imports feature which can be removed unnecessary namespaces which have been imported. We can select all the namespaces can be selected and right click on it, then context menu can be got with Organize imports options like "Remove Unused Using", "Sort Using", "Remove and Sort". Refactoring support for new .NET 3.x features like Anonymous types, Extension Methods, Lambda Expressions.
• **Intelligence Filtering:**
Earlier in VS 2005 when typing was being done with intelligence box they displayed all the items. For example if the letter 'K' is being typed then intelligence is taken we to the items starts with 'K' but also all other items will be presented in intelligence box. Now in VS 2008 if we press 'K' only the items starts with 'K' will be filtered and displayed.

• **Intelligence Box display position**
Earlier in some cases as in fig 11, when type was being done than an object name and pressing, then they displayed intelligence in the position of the object which was typed. Here the code which was typed will go back to the dropdown, in this case sometimes programmer can get disturbed. Now in VS 2008 If we hold the Ctrl key while the intelligence is being dropped down then intelligence box will become semi-transparent mode.

• **Visual Studio 2008 Split View**

![Figure 13: Split View](image)

VS 2005 has a feature show in single window, but both the windows tiles horizontally. In VS 2008 this split view can be configured feature to vertically, this
will be allowed to developers to use maximum screen on laptops and wide-screen monitors.
Here; if any HTML or ASP markup is selected in source window automatically corresponding item will be selected in design window.

- **HTML JavaScript warnings, not as errors:**
  HTML errors can be mixed by vs 2005 and C# and VB.NET errors and shows in one window. Now VS 2008 can separate this and will show javascript and HTML errors as warnings.

- **Debugging .NET Framework Library Source Code:**
  Now in VS 2008 the source code of .NET Framework Library methods can be debugged. If we want to debug the DataBind() method of DataGrid control a debugging point can be placed over there and continue with debug the source code of DataBind() method.

- **In built Silverlight Library**

  ![Silverlight Library](image)

**Figure 14 Silverlight Library**
Earlier silver light separately, now in VS 2008 it is inbuilt, with this debug and deploy can be created the silver light applications.
• Visual Studio LINQ Designer

![LINQ Designer](image)

Figure 15 LINQ Designer

We know that SQL Server IDE feature is inbuilt in VS 2005. So there is no need to use any other tools like SQL Server Query Analyzer and SQL Server Enterprise Manger. By this we can create connections to our database and the tables and stored procedures can be viewed in VS IDE itself. But now in VS 2008 there is View Designer window capability with LINQ-to-SQL.

• Inbuilt C++ SDK

It used to be difficult to download and configure the C++ SDK Libraries and tools to develope windows based applications. Now it is inbuilt with VS 2008 and configurable
• Multilingual User Interface Architecture - MUI

MUI is architecture contains packages from Microsoft Windows and Microsoft Office libraries. The user is supported by it to change the text language display according him.

Now we can get Visual Studio in English, Spanish, French, German, Italian, Chinese Simplified, Chinese Traditional, Japanese, and Korean. Microsoft is reengineering the MUI which will be supported nine local languages then Visual studio can be viewed in other 9 local languages.
• Microsoft Popfly Support

Microsoft Popfly explorer is an add-on to VS 2008, by this directly we can deploy or hosting the Silver light applications and Marsh up objects. People may feel that I am a promoter to Visual Studio 2008 as a salesman, but we get plenty of free resources and free tools with Visual Studio 2008.

3.4 SQL SERVER 05
Microsoft SQL Server 2005 is relations of products that get jointly the data storage necessities of the largest information processing systems and marketable Web sites, yet at the similar time are able to give easy-to-use data storage services to a person or small business. The data storage requirements of a modern business or government organization are very complex. Online Transaction Processing (OLTP) systems must be capable of handling thousands of instructions placed at the same time. rising numbers of corporations are implementing large Web sites as a instrument for their clients to cross the threshold orders, contact the service subdivision, get in succession about products, and for many other tasks that previously required contact with
employees. These sites have need of data storage that is protected, yet tightly incorporated with the Web. Organizations are implementing off-the-shelf software packages for hazardous services such as human capital planning, urbanized resources planning and record manage. These systems require databases competent of storing large amounts of data and at the bottom of large numbers of users.

Organizations contain many users who must continue working when they do not contain access to the network. Instance is mobile disconnected users, such as traveling sales representatives or regional inspectors. These users must synchronize the data on a notebook or laptop with the present data in the commercial system, separate from the network, record the results of their work while in the field, and then finally reconnect with the commercial system and merge the results of their fieldwork into the business data store.

- **MS SQL Server 2005 Architecture**

MS SQL Server 2005 data is stored in databases. The data in a database is prearranged into the logical mechanism visible to users. A folder is also bodily implement as two or more files on disk.

When using a folder, we work first and foremost with the logical mechanism such as tables, views, procedures, and users. The physical completion of files is largely see-through. Typically, only the database manager needs to work with the physical completion.
Each instance of SQL Server has four system databases (master, model, tempdb, and msdb) and one or additional user databases. Some organizations contain only one user database, containing all the information for their organization. Some association has different databases for each group in their association, and from time to time databases used by a solitary application. Each Microsoft SQL Server 2005 component is designed to contain a unique architecture and life cycle—the two most important areas that can affect an improve path. Some SQL Server 200 components build on a solid base to augment, optimize, and help stabilize existing functionality. Microsoft has performed an wide reworking of other SQL Server facial appearance to enhance presentation and application programmability. SQL Server 2005 also incorporates totally overhauled device and additions intended to get together a new age group of information organization needs. Preparing for a SQL Server 2005 upgrade involves sympathetic some basic principles that enable administrator. To make appropriate decisions and help ensure success. As with any upgrade, the keys to success are appropriate planning and testing for the needs of the specific environment.
Figure 19: Connect to Server
Figure 20: Server Name and Authentication
Figure 21: Login Password
Figure 21 SQL Server 9.0.2047
Figure 22: Database in SQL
Figure 23 New Database
Figure 24: Database files
Figure 25 Database Summary
If we follow the above step than performance of our research work will become smooth and efficient. As it is known that Research in common parlance refers to a search for knowledge. Research can be defined as a scientific and systematic search for pertinent information on a specific topic. In real, it is an art of scientific investigation. It is laid down in Advanced Learner’s Dictionary of Current English,
the meaning of research as “a cautious examination or query particularly from side to side search for new particulars in any limb of knowledge.” It is considered research as, a movement from the known to the unknown. We can say it is a voyage of discovery. We all have the vital character of curiosity for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown. This inquisitiveness is the mother of all knowledge and the method, which is employed to obtain the knowledge of whatever the unknown, can be termed as research. Research is an academic activity and we should use in it in a technical sense. According to Clifford Woody research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis. D. Slazenger and M. Stephenson in the Encyclopedia of Social Sciences define research as “the treatment of things, concepts or cryptogram for the reason of generalizing to make bigger, right or verify information, whether that information aids in building of theory or in the put into practice of an art.” Research is, thus, an original contribution to the existing stock of knowledge making for its advancement. It can be persuaded of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research. The systematic approach concerning generalization and the formulation of a theory is also research. As such the term ‘research’ refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions towards the concerned problem or in certain generalizations for some theoretical formulation.