JHULELAL INSTITUTE OF TECHNOLOGY

NAGPUR

DEPARTMENT OF COMPUTER TECHNOLOGY

INTERNSHIP REPORT

WINTER 2019

ITNetworkZ Infosystems Pvt. Ltd.
(Kavin India Pvt.Ltd)

TECHNICAL HEAD:

MR . RAJIV VERMA

PRESENTED BY:

Anchal Mohadikar

DECLARATION

During the preparation of this report I realize that it is the joint venture guidance,assistance and cooperation's. So it could not be completed without and declaration of help received .It is matter of great privilege to express my deep sense of gratitude towards my guide MR . RAJIV VERMA Technical head at **Kavin India Pvt. Ltd**, Nagpur for having guidance. I am thankful to him for constant motivation and inspiration extended throughout during the internship work which has made possible to complete the work in schedule time.My sincere thanks to all faculties.

Submitted By:

Anchal Mohadikar

ACKNOWLEDGEMENT

I have taken efforts in the project. However, it would not have been possible without the kind and help of support and help of many individual and organizations would like to extend my sincere thanks to all of them.

I am highly indebted to MR. RAJIV VERMA for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project. I would like to express my gratitude toward my parent & members of **Kavin India Pvt. Ltd.** For their kind co-operation and encouragement which help me in completion of this project.

I would like to give my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciation also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

Technical Head: **Submitted by:**

Mr. Rajiv Verma **Anchal Mohadikar**

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COMPANY INFORMATION

Company Name- Kavin India.Ext.Ltd

INTRODUCTION

MS **Kavin India** is an IT Company and part of Information Technology industry, it was get on 22 May 2007. IT Networkz started its operations with Information Technology services including IT Infrastructure Management and Professional IT Training & Online Exam Facility, later in December 2009, company established Software Development wing well On 26 June 2015. Company was incorporated as ' **Kavin India Pvt ltd.** Company has its presence in India & in South Africa, its head office is situated in Laxmi Nagar and branch offices are at Nandanvan-Nagpur, Cape Town - South Africa. Company is running its all operations independently as per their Geographic area India operations are handled by a team of 20-25 professionals.

Service Category: IT Training & International Assessment:

IT Networkz has very strong bonding with educational institutions and hence established around 28- MoU's with esteemed Institutions which comes under MSBTE, UGC and AICTE, these MoU are done for students & faculty development. Technical team members GEN work have fine experience and keen interest in teaching Company has trained
around 4000+ candidates under its banner and usually 7200+ students attend IT-Networkz's och is every youth. IT Networkz is an ex authorized Prometric and Pearson VUE test centre for International IT Exams. Currently, it is authorized by "Kryterion Testing Network for reputed Sales Force and other IT international exams; IT giant "Persistent Systems Ltd had taken an initiative with company to start this facility for needy candidates.

Service Category: Live Project & Internships

Live Project Internship turns student into professionals. Being a part of IT Industry IT Networkz Management started with this initiative to produce more quality and Industry ready professionals Company is providing 6 Weeks, 6 Months & 1 Year Internship / Live projects for Final Year and Graduate Candidates.

Service Category: Software Development:

IT-Networkz has a term of enthusiastic and creativity developers and designers Company is providing stand alone, web applications and mobile app development to various clients Till now company has completed various projects and working for some

esteemed clients in Hospitality, Education, and Government sector. As per the market demand and own strength company has planned service based solutions in Matrimony, Employment, Education Listing Electronics Test System Venue Searching, etc Company is planning to develop few solutions for health care industry as well as professionals Company is providing 6 Weeks, 6 Months & 1 Internship /Live for Final Year and Graduate Candidates.

Awards

Awarded in TOP TEN Prometric Test Centres in the World: out of some
year 2013 & 2014
Microsoft Network Partner
700-Tech Sension Delivered to 20,000-Students

Products

Microsoft Dot Net

Virtualization

Cloud

CCNA

Linux

Hardware

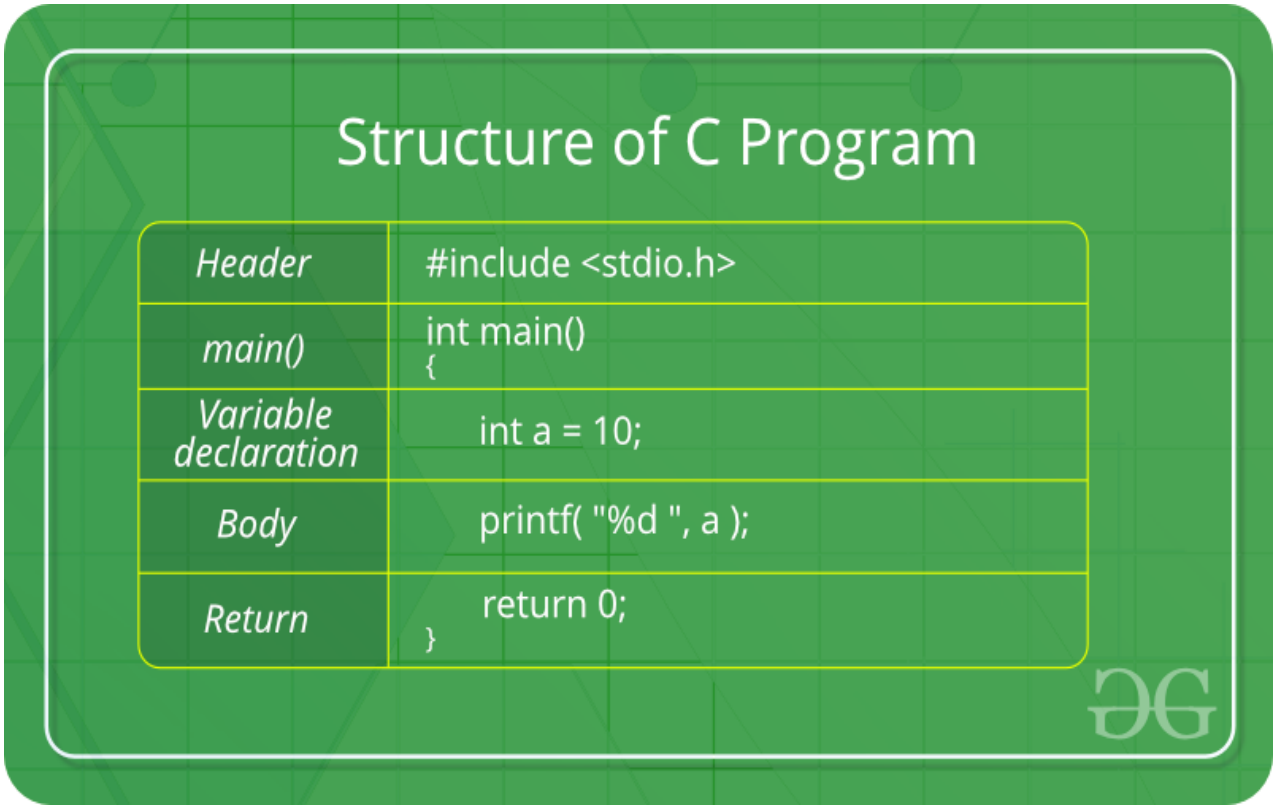
Security

Chapter 1

INTRODUCTION TO C

C is the basic programming language that is extremely popular for the programming . It is the mother language . It was first discovered by **Dennis Ritchie** in the year 1972.
C language has some basic features , it includes low-level access to memory, a simple set of keywords and clean style. These are some of the features which make C language suitable for system programmings . e.g:- operating system or compiler development.
As C language is the mother of all programming language , Later many languages is the has developed and borrowed syntax/features directly or indirectly from c languages .
Later developed languages are like Java , PHP, Javascript ,etc.
The super set of C language is

1 . Structure of a C program



Chapter I

INTRODUCTION TO C

I . Basics Concept of C Language :

C – printf and scanf:

- printf() and scanf() functions are inbuilt library functions in C programming language which are available in C library by default. These functions are declared and related macros are defined in “stdio.h” which is a header file in C language.
- We have to include “stdio.h” file as shown in below C program to make use of these printf() and scanf() library functions in C language.

C- TOKENS:

- C tokens are the basic buildings blocks in C language which are constructed together to write a C program.
- Each and every smallest individual units in a C program are known as C tokens.

C tokens are of six types. They are,

1. Keywords (eg: int, while),
2. Identifiers (eg: main, total),
3. Constants (eg: 10, 20),
4. Strings (eg: “total”, “hello”),
5. Special symbols (eg: (), {}),
6. Operators (eg: +, /,-,*)

```
 int main()
{
  int x, y, total;
  x = 10, y = 20;
  total = x + y;
  printf ("Total = %d \n", total);
}
```

KEYWORDS IN C LANGUAGE:

- Keywords are pre-defined words in a C compiler.
- Each keyword is meant to perform a specific function in a C program.
- Since keywords are referred names for compiler, they can't be used as variable name.

C-STRING

- C Strings are nothing but array of characters ended with null character ('\0').
- This null character indicates the end of the string.
- Strings are always enclosed by double quotes. Whereas, character is enclosed by single quotes in C.

EXAMPLE FOR C STRING:

- char string[20] = {'f', 'r', 'e', 's', 'h', '2', 'r', 'e', 'f', 'r', 'e', 's', 'h', '\0'}; (or)
- char string[20] = "fresh2refresh";

C-POINTER

- Pointers in C language is a variable that stores/points the address of another variable. A Pointer in C is used to allocate memory dynamically i.e. at run time. The pointer variable might be belonging to any of the data type such as int, float, char, double, short etc.
- Pointer Syntax : data_type *var_name; Example : int *p; char *p;
- Where, * is used to denote that "p" is pointer variable and not a normal variable.

EXAMPLE:-

```
#include <stdio.h>
int main()
{
  int *ptr, q;
  q = 50;
  /* address of q is assigned to ptr */
  ptr = &q;
  /* display q's value using ptr variable */
  printf("%d", *ptr);
  return 0;
}
```

C - FUNCTIONS

- A large C program is divided into basic building blocks called C function. C function contains set of instructions enclosed by "{ }" which performs specific operation in a C program. Actually, Collection of these functions creates a C program.

EXAMPLE :-

```
#include<stdio.h>
// function prototype, also called function declaration
float square ( float x );
// main function, program starts from here

int main( )
{
   float m, n ;
   printf ( "\nEnter some number for finding square \n");
   scanf ( "%f", &m ) ;
   // function call
   n = square ( m ) ;
   printf ( "\nSquare of the given number %f is %f",m,n );
}

float square ( float x )   // function definition
{
   float p ;
   p = x * x ;
   return ( p ) ;
}
```

C – LOOPS CONTROL STATEMENTS

Loop control statements in C are used to perform looping operations until the given condition is true. Control comes out of the loop statements once condition becomes false.

TYPES OF LOOP CONTROL STATEMENTS IN C:

There are 3 types of loop control statements in C language. They are,

1. for
2. while
3. do-while

Syntax for each C loop control statements are given in below table with description.

1

Loop Name	Syntax
For	for (exp1; exp2; expr3) { statements; }Where, exp1 – variable initialization (Example: i=0, j=2, k=3) exp2 – condition checking (Example: i>5, j<3, k=3) exp3 – increment/decrement (Example: ++i, j–, ++k)
While	while (condition) { statements; }where, condition might be a>5, i<10
do while	do { statements; } while (condition);where, condition might be a>5, i<10

EXAMPLE:-

```
#include <stdio.h>

 int main()
{
   int i=1;

  do
{
    printf("Value of i is %d\n",i);
    i++;
}while(i<=4 && i>=2);

}
```

SWITCH CASE STATEMENT IN C:

- Switch case statements are used to execute only specific case statements based on the switch expression.
- Below is the syntax for switch case statement.

```
switch(expression)
{
 caselabel1: statements;
   break;
 caselabel2:  statements;
                break;

 caselabel3: statements;
   break;
 default: statements;
   break;
}
```

EXAMPLE PROGRAM FOR SWITCH..CASE STATEMENT IN C:

```
#include <stdio.h>

int main ()
{
  int value = 3;
  switch(value)
  {
    case 1:
    printf("Value is 1 \n" );
    break;

    case 2:
    printf("Value is 2 \n" );
    break;
```

```
 case 3:
    printf(“Value is 3 \n” );
    break;

    case 4:
    printf(“Value is 4 \n” );
    break;

    default :
    printf(“Value is other than 1,2,3,4 \n” );
  }
  return 0;
}
```

Chapter II

APPLICATIONS OF C

Mainly C Language is used for Develop Desktop application and system software. Some application of C language are given below.

- C programming language can be used to design the system software like operating system and Compiler.
- To develop application software like database and spread sheets.
- For Develop Graphical related application like computer and mobile games.
- To evaluate any kind of mathematical equation use c language.
- C programming language can be used to design the compilers.
- UNIX Kernal is completely developed in C Language.
- **For Creating Compilers** of different Languages which can take input from other language and convert it into lower level machine dependent language.
- C programming language can be used to design Operating System.
- C programming language can be used to design Network Devices.

Chapter 2

INTRODUCTION TO C++

I . **What is C++ ?**

C++ is a language which gives us a platform that can be used to create high performance application .
C++ language is based on the c language . It was developed by **Bjarne Stroustrup** at Bell labs in 1979.
C++ gives programmers a high level of control over system resources and memory.
The language was updated 3 major times in 2011, 2014, and 2017 to C++11, C++14, and C++17.
C++ is one of the world's most popular programming languages.
C++ can be found in today's operating systems, Graphical User Interfaces, and embedded systems.
C ++ is an object oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs.
C++ is portable and can be used to develop applications that can be adapted to multiple platforms.
C++ is fun and easy to learn!
As C++ is close to C# and Java, it makes it easy for programmers to switch to C++ or vice versa

Chapter 3

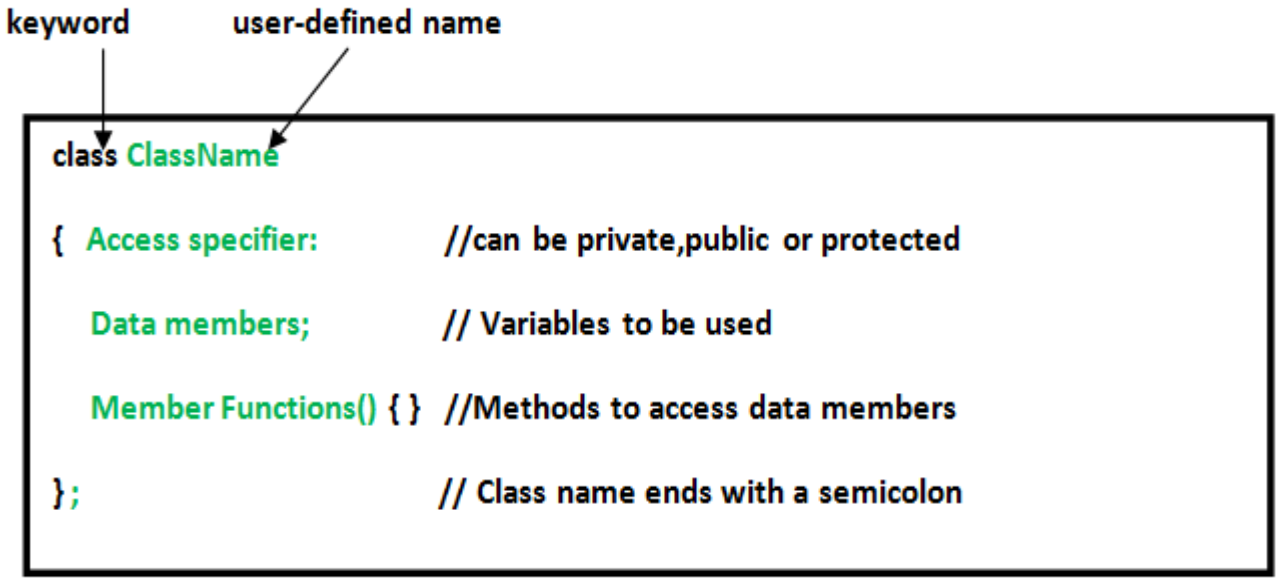
CONCEPTS OF OOPS

OOPS (OBJECT ORIENTED PROGRAMMING) :-

OOPS is the Object Oriented Programming Language .
In OOPs we can break the complex problem statement into a smaller problem statement by using objects .
The program were written in the procedural language . The are nathing but a long list of instruction .
OOPs is the collections of creating objects that arevable to interect with each other . It makes eassier to develop program in OOPs as we can understand the relationship between them .
In OOPs we write a program using classes and objects .

1.CLASSES AND OBJECTS

Classes:- Class is the collection of object of similar types . Once a class has been defined , we can create any numbers of objects belonging to that class .
Eg:- grapes ,bananas and oranges are the members of class fruits .



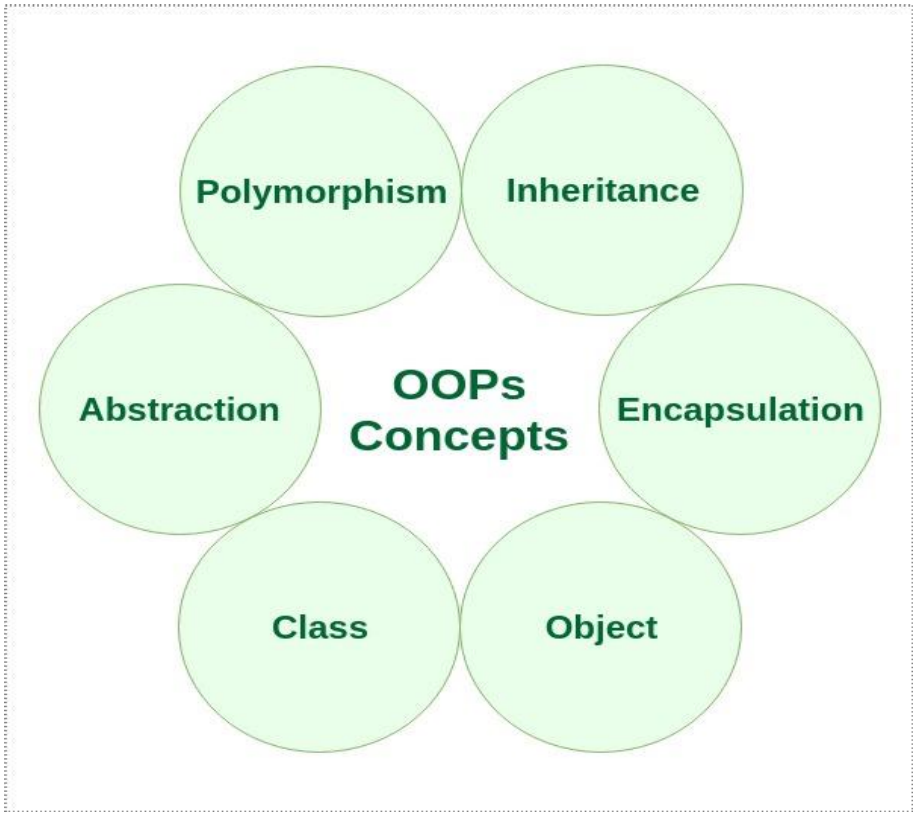
Objects:- Objects is a collection of numbers of entities .Objects takes up space in the memory . Object are instance of classes .When a program is executed , the objects interact by sending messages to one another. Each object contain data code to manipulate the data . Object can. interact without having known details of each others data or code.

The public data members are also accessed in the same way given however the private data members are not allowed to be accessed directly by the object. Accessing a data member depends solely on the access control of that data member.
This access control is given by Access modifiers in C++. There are three access modifiers : **public, private and protected**.

```
// C++ program to demonstrate
// accessing of data members

#include <bits/stdc++.h>
using namespace std;
class Geeks
{
    // Access specifier
    public:

    // Data Members
    string geekname;

    // Member Functions()
    void printname()
    {
       cout << "Geekname is: " << geekname;
    }
};

int main() {

    // Declare an object of class geeks
    Geeks obj1;

    // accessing data member
    obj1.geekname = "Abhi";

    // accessing member function
    obj1.printname();
    return 0;
}
```

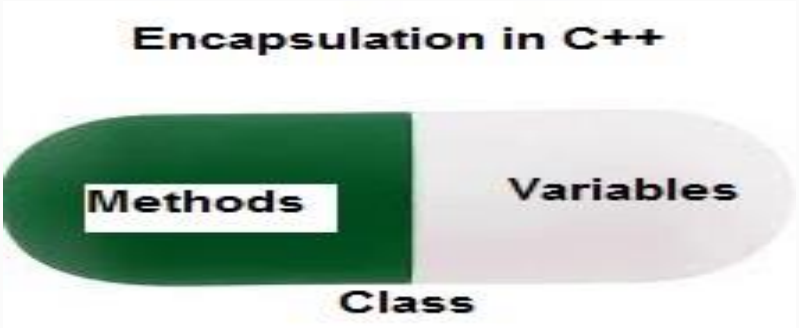
Output:

```
Geekname is: Abhi
```



2 . ENCAPSULATION:-

Combining data and functions into a single unit called as Class and process is called as Encapsulation. Data encapsulation is important features of a class .
Class contains both data and functions.
Data is not accessible from the outside world and only those functions which are access by the program is called as Data binding or information hiding.



3. ABSTRACTION :-

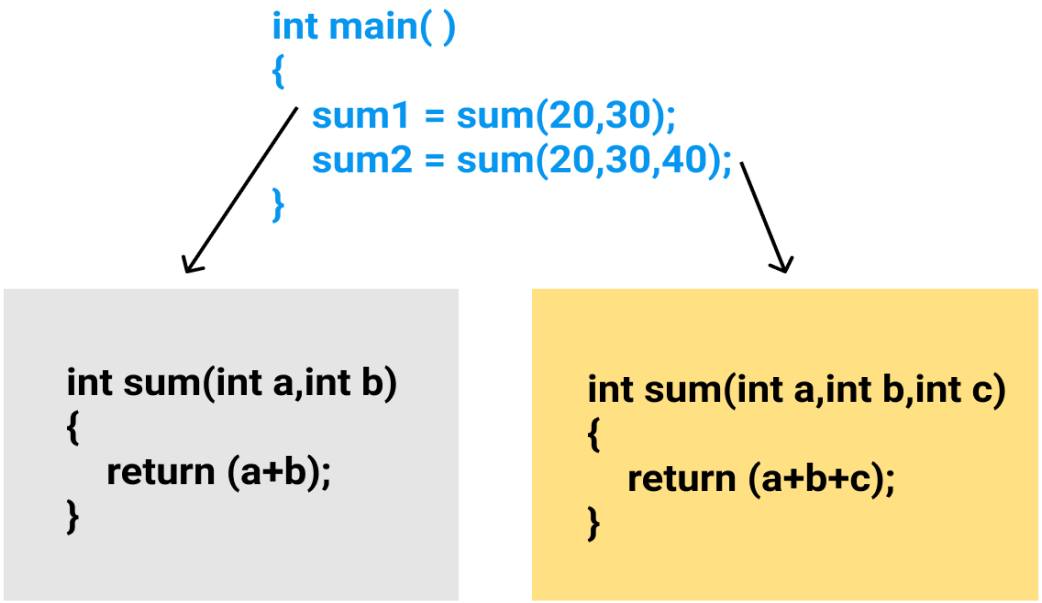
Data abstraction is one of the most essential and important features of object-oriented programming in C++. Abstraction means displaying only essential information and hiding the details. Data abstraction refers to providing only essential information about the data to the outside world, hiding the background details or implementation.

4 . POLYMORPHISM:-

A greek term means ability to take more than one form . In simple words, we can define polymorphism as the ability of a message to be displayed in more than one form.

A person at the same time can have different characteristic. Like a man at the same time is a father, a husband, an employee.

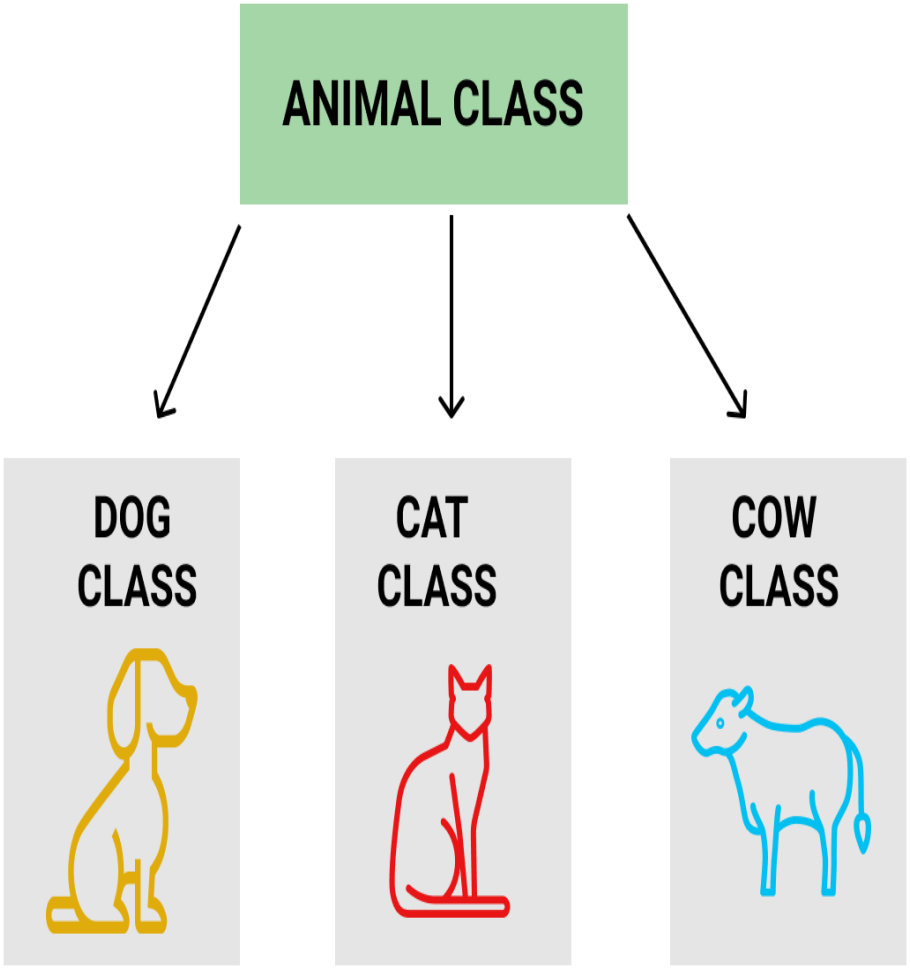
So the same person posses different behaviour in different situations. This is called polymorphism.



4 . INHERITENCE :-

It is the process by which object of one class aquire the properties or features of object of other class. The concepts of inheritance provide the ideas of reusability means we can add additional features to an existing class without Modifying it .
Inheritance is one of the most important features of Object-Oriented Programming.

Example: Dog, Cat, Cow can be Derived Class of Animal Base Class.



Chapter 4

DIFFERENCE BETWEEN C AND C++

Difference between C and C++	
C	**C++**
C was developed by Dennis Ritchie between 1969 and 1973 at AT&T Bell Labs.	C++ was developed by Bjarne Stroustrup in 1979 with C++'s predecessor "C with Classes".
C supports procedural programming paradigm for code development.	C++ supports both procedural and object oriented programming paradigms; therefore C++ is also called a hybrid language.
C does not support object oriented programming; therefore it has no support for polymorphism, encapsulation, and inheritance.	Being an object oriented programming language C++ supports polymorphism, encapsulation, and inheritance.
C does not support function and operator overloading.	C++ supports both function and operator overloading.
C does not allow functions to be defined inside structures.	In C++, functions can be used inside a structure.
C provides malloc() and calloc() functions for dynamic memory allocation, and free() for memory de-allocation.	C++ provides new operator for memory allocation and delete operator for memory de-allocation.
C does not provide direct support for error handling (also called exception handling)	C++ provides support for exception handling. Exceptions are used for "hard" errors that make the code incorrect.

Chapter 5

INTRODUCTION TO C#

I .C – SHARP :-

C# is a general-purpose, modern and object-oriented programming language pronounced as “C Sharp”. C# is one of the most commonly used programming languages for.NET frameworks. C# is an object-oriented simple yet powerful language developed by Microsoft. C# syntax simplifies many of the complexities of C++ and provides powerful features such as nullable value types, enumerations, delegates, lambda expressions and direct memory access, which are not found in Java. A typical C# program uses types from the class library as well as user-defined types that model the concepts that are specific to the program's problem domain.

The information stored in a type can include the following:

- The storage space that a variable of the type requires.
- The maximum and minimum values that it can represent.
- The members (methods, fields, events, and so on) that it contains.
- The base type it inherits from.
- The location where the memory for variables will be allocated at run time.
- The kinds of operations that are permitted.

It was developed by Microsoft led by Anders Hejlsberg and his team within the *.NET* initiative and was approved by the European Computer Manufacturers Association (ECMA) and International Standards Organization (ISO). C# is among the languages for Common Language Infrastructure.

Features Of C# :-

C-sharp is an object-oriented programming language that offers tons of features to programmers.

Some of which are:

- Simple and easy to understand syntax.
- It offers Interoperability, scalability and is updatable.
- It is based on components.
- It has a rich library and is a structured language.
- It is type-safe i.e. it only allows code to access the memory location for which it has authorized access

II . C# USING .NET :-

- The .NET Framework

The .Net framework developed by Microsoft is a powerful platform that helps developers in writing different types of applications including Windows, web and web services. The framework consists of a large library of codes that can be used by languages like C#.

The ASP.NET application codes can be written in any of the following languages:

- C#
- Visual Basic.Net
- Jscript
- J#

ASP.NET is used to produce interactive, data-driven web applications over the internet. It consists of a large number of controls such as text boxes, buttons, and labels for assembling, configuring, and manipulating code to create HTML pages.

ASP.NET is a technology, which works on the .Net framework that contains all web-related functionalities. The .Net framework is made of an object-oriented hierarchy. An ASP.NET web application is made of pages. When a user requests an ASP.NET page, the IIS delegates the processing of the page to the ASP.NET runtime system.

The ASP.NET runtime transforms the .aspx page into an instance of a class, which inherits from the base class page of the .Net framework. Therefore, each ASP.NET page is an object and all its components i.e., the server-side controls are also objects.

The behavior of an ASP.NET application is affected by different settings in the configuration files:

- machine.config
- web.config

The machine.config file contains default and the machine-specific value for all supported settings. The machine settings are controlled by the system administrator and applications are generally not given access to this file.

The web.config file is a subset of the machine.config file. Any web.config file can locally extend, restrict, or override any settings defined on the upper level.

Visual Studio generates a default web.config file for each project. An application can execute without a web.config file, however, you cannot debug an application without a web.config file.

The following code snippet shows the basic syntax of a configuration file:

```
<configuration>

  <!-- Configuration section-handler declaration area. -->
    <configSections>
      <section name="section1" type="section1Handler" />
      <section name="section2" type="section2Handler" />
    </configSections>
  <!-- Configuration section settings area. -->

  <section1>
    <s1Setting1 attribute1="attr1" />
  </section1>

  <section2>
    <s2Setting1 attribute1="attr1" />
  </section2>

  <system.web>
    <authentication mode="Windows" />
  </system.web>

</configuration>
```

Connection Strings

The connection strings show which database connection strings are available to the website. For example:

```
<connectionStrings>
  <add name="ASPDotNetStepByStepConnectionString"
    connectionString="Provider=Microsoft.Jet.OLEDB.4.0;
    Data Source=E:\\projects\datacaching\ /
    datacaching\App_Data\ASPDotNetStepByStep.mdb"
    providerName="System.Data.OleDb" />

  <add name="booksConnectionString"
    connectionString="Provider=Microsoft.Jet.OLEDB.4.0;
    Data Source=C:\ \databinding\App_Data\books.mdb"
    providerName="System.Data.OleDb" />
</connectionStrings>
```

Authentication:-

It configures the authentication support. The basic syntax is as given:

```
<authentication mode="[Windows|Forms|Passport|None]">
  <forms>...</forms>
  <passport/>
</authentication>
```

Authorization:-

It configures the authorization support. The basic syntax is as given:

```
<authorization>
  <allow .../>
  <deny .../>
</authorization>
```

Error handling in ASP.NET has three aspects:

- **Tracing** - tracing the program execution at page level or application level.
- **Error handling** - handling standard errors or custom errors at page level or application level.
- **Debugging** - stepping through the program, setting break points to analyze the code

The Panel control works as a container for other controls on the page. It controls the appearance and visibility of the controls it contains. It also allows generating controls programmatically.

The basic syntax of panel control is as follows:

```
<asp:Panel ID= "Panel1"  runat = "server">
</asp:Panel>
```

Chapter 6

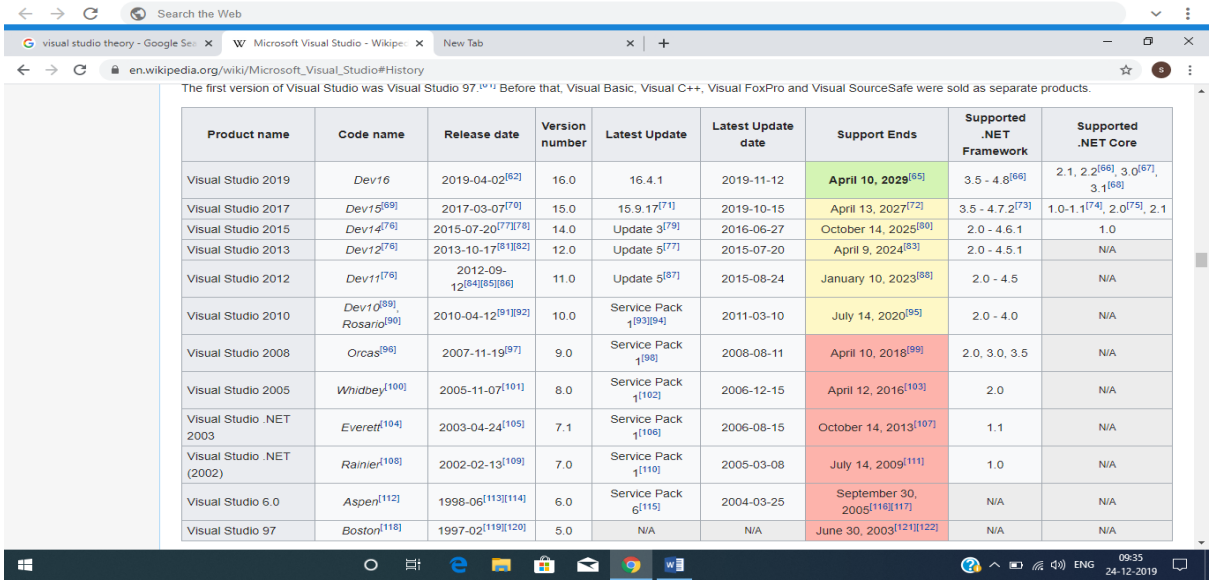
MICROSOFT VISUAL STUDIO

Microsoft Visual Studio is an IDE i.e. Integrated Development Environment from Microsoft.It is used to develop Computer Programs as well as Websites , Web apps , Web services and Mobile apps. It uses Microsoft software development platforms such as Windows API , Windows forms , Windows Presentation foundation , Windows store and Microsoft Silverlight .Visual Studio includes a code editor supporting IntelliSance as well as code refactoring .
Visual Studio supports 36 different programming languages and allows the code editor and debugger to support nearly any programming language, provided a language-specific service exists. Built-in languages include C , C++, Visual Basic .NET, C#, F#, JavaScript, TypeScript, XML, XSLT, HTML, and CSS . Support for other languages such as Python, Ruby, Node.js, and Mamong others is available via plug-ins.

Evolution of Visual Studio

The first version of VS was released in 1997, named as Visual Studio 97 having version number 5.0. The latest version of Visual Studio is 15.0. It is also termed as Visual Studio 2017. The supported *.Net Framework Versions* in latest Visual Studio is 3.5 to 4.7. Java was supported in old versions of Visual Studio but in the latest version doesn't provide any support for Java language.

Microsoft has given Variety of Visual Studio Versions through the Past Years.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en.wikipedia.org/wiki/Microsoft_Visual_Studio#History

The first version of Visual Studio was Visual Studio 97.[v 1] Before that, Visual Basic, Visual C++, Visual FoxPro and Visual SourceSafe were sold as separate products.

Product name	Code name	Release date	Version number	Latest Update	Latest Update date	Support Ends	Supported .NET Framework	Supported .NET Core
Visual Studio 2019	*Dev16*	2019-04-02[62]	16.0	16.4.1	2019-11-12	**April 10, 2029**[65]	3.5 - 4.8[66]	2.1, 2.2[66], 3.0[67], 3.1[68]
Visual Studio 2017	*Dev15*[69]	2017-03-07[70]	15.0	15.9.17[71]	2019-10-15	April 13, 2027[72]	3.5 - 4.7.2[73]	1.0-1.1[74], 2.0[75], 2.1
Visual Studio 2015	*Dev14*[76]	2015-07-20[77][78]	14.0	Update 3[79]	2016-06-27	October 14, 2025[80]	2.0 - 4.6.1	1.0
Visual Studio 2013	*Dev12*[76]	2013-10-17[81][82]	12.0	Update 5[77]	2015-07-20	April 9, 2024[83]	2.0 - 4.5.1	N/A
Visual Studio 2012	*Dev11*[76]	2012-09-12[84][85][86]	11.0	Update 5[87]	2015-08-24	January 10, 2023[88]	2.0 - 4.5	N/A
Visual Studio 2010	*Dev10*[89], *Rosario*[90]	2010-04-12[91][92]	10.0	Service Pack 1[93][94]	2011-03-10	July 14, 2020[95]	2.0 - 4.0	N/A
Visual Studio 2008	*Orcas*[96]	2007-11-19[97]	9.0	Service Pack 1[98]	2008-08-11	April 10, 2018[99]	2.0, 3.0, 3.5	N/A
Visual Studio 2005	*Whidbey*[100]	2005-11-07[101]	8.0	Service Pack 1[102]	2006-12-15	April 12, 2016[103]	2.0	N/A
Visual Studio .NET 2003	*Everett*[104]	2003-04-24[105]	7.1	Service Pack 1[106]	2006-08-15	October 14, 2013[107]	1.1	N/A
Visual Studio .NET (2002)	*Rainier*[108]	2002-02-13[109]	7.0	Service Pack 1[110]	2005-03-08	July 14, 2009[111]	1.0	N/A
Visual Studio 6.0	*Aspen*[112]	1998-06[113][114]	6.0	Service Pack 6[115]	2004-03-25	September 30, 2005[116][117]	N/A	N/A
Visual Studio 97	*Boston*[118]	1997-02[119][120]	5.0	N/A	N/A	June 30, 2003[121][122]	N/A	N/A

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ARCHITECTURE

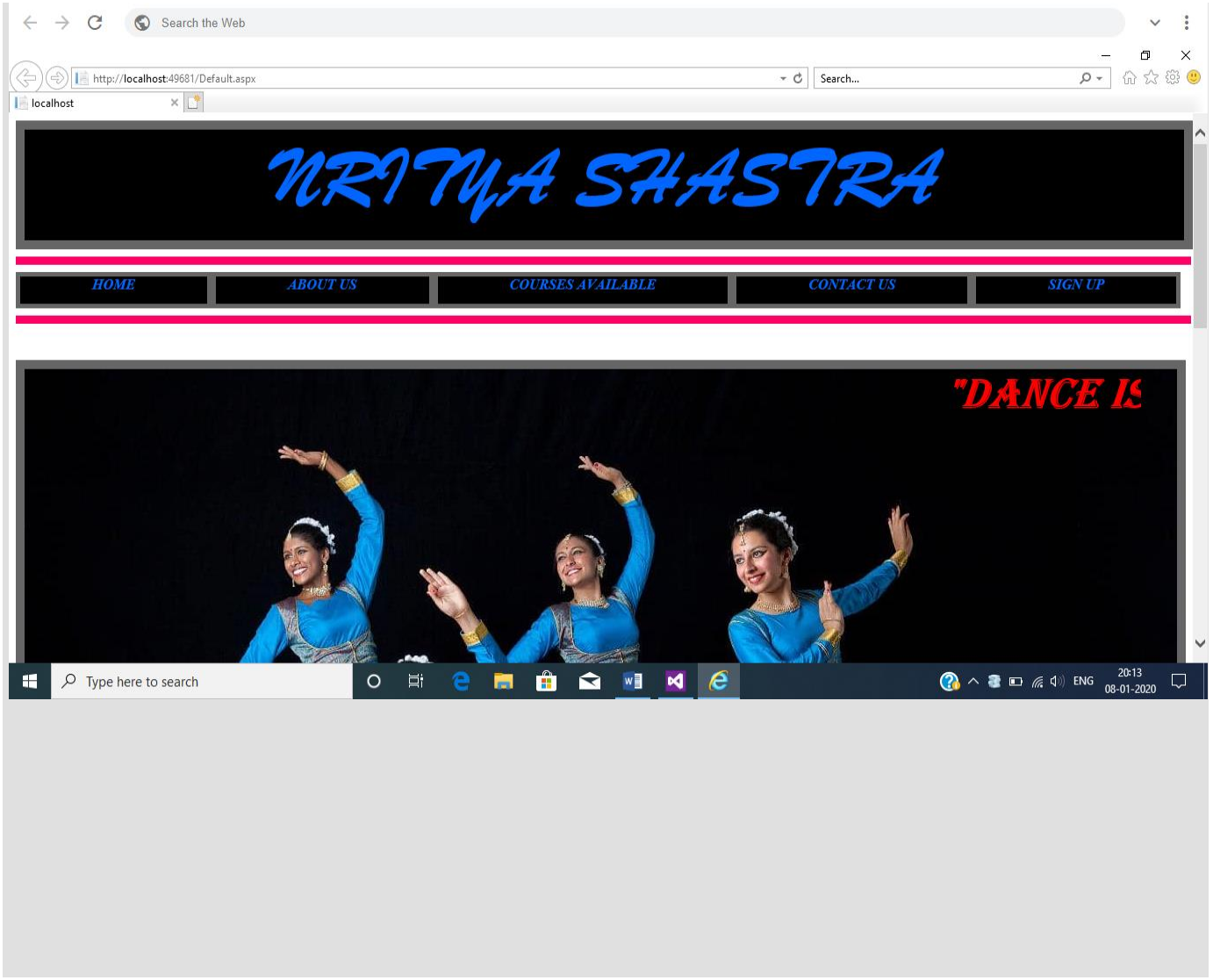
Visual Studio does not support any programming language, solution or tool intrinsically; instead, it allows the plugging of functionality coded as a VSPackage. When installed, the functionality is available as a *Service*.

The IDEprovides three services:

1. SVsSolution, which provides the ability to enumerate projects and solutions;
2. SVsUIShell, which provides windowing and UI functionality ;
3. SVsShell, which deals with registration of VSPackages.
   In addition, the IDE is also responsible for coordinating and enabling communication between services.

Visual Studio uses COM to access the VS Packages .

Visual Studio does not include any Source Control support built in but it defines two alternative ways for source control systems to integrate with the IDE. A Source Control VS Package can provide its own customised user interface. In contrast, a source control plugin using the *MSSCCI* (Microsoft Source Code Control Interface) provides a set of functions that are used to implement various source control functionality, with a standard Visual Studio user interface.



FEATURES

Code editor

Visual Studio includes a code editor that supports syntax highlighting and code completion using IntelliSense for variables , functions , methods , loops. IntelliSense is supported for the included languages, as well as for XML , Cascading Style Sheets , and JavaScript when developing web sites and web applications . The code editor is used for all supported languages.

The Visual Studio code editor also supports setting bookmarks in code for quick navigation. Other navigational aids include collapsing code blocksand incremental search . The code editor also includes a multi-item clipboard and a task list.The code editor supports code snippets, which are saved templates for repetitive code and can be inserted into code and customized for the project being worked on.

Visual Studio features background compilation . As code is being written, Visual Studio compiles it in the background in order to provide feedback about syntax and compilation errors, which are flagged with a red wavy underline. Warnings are marked with a green underline. Background compilation does not generate executable code, since it requires a different compiler than the one used to generate executable code. Background compilation was initially introduced with Microsoft Visual Basic, but has now been expanded for all included languages.

Debugger

Visual Studio includes a Debugger that works both as a Source-level debugger and as a Machine-level debugger. It works with both managed code as well as native code and can be used for debugging applications written in any language supported by Visual Studio. In addition, it can also attach to running processes, monitor, and debug those processes. If source code for the running process is available, it displays the code as it is being run. If source code is not available, it can show the disassembly.

The Visual Studio debugger can also create memory dumps as well as load them later for debugging. Multi-threaded programs are also supported. The Debugger can be configured to be launched when an application running outside the Visual Studio environment crashes.

The Debugger allows setting breakpoints and watches . Breakpoints can be conditional, meaning they get triggered when the condition is met. Code can be stepped over i.e., run one line at a time. It can either *step into* functions to debug inside it, or *step over* it, i.e., the execution of the function body isn't available for manual inspection.

The Debugger supports *Edit and Continue*, i.e., it allows code to be edited as it is being debugged. When debugging, if the mouse pointer hovers over any variable, its current value is displayed in a tooltip, where it can also be modified if desired. During coding, the Visual Studio debugger lets certain functions be invoked manually from the Immediate tool window. The parameters to the method are supplied at the Immediate window.

Designer

Visual Studio includes a host of visual designers to aid in the development of applications.

These tools include:

1.Windows Forms Designer

The Windows Forms designer is used to build GUI applications using Windows Forms.

2.WPF

Like the Windows Forms designer it supports the drag and drop metaphor. It is used to author user interfaces targeting Windows Presentation Foundation.

3.Web designer/development

Visual Studio also includes a web-site editor and designer that allows web pages to be authored by dragging and dropping widgets. It is used for developing ASP.NETapplications and supports HTML, CSSand JavaScript. It uses a code-behind model to link with ASP.NET code

4.Class designer

The Class Designer can generate C# and VB.NET code outlines for the classes and methods. It can also generate class diagrams from hand-written classes.

5.Data designer

The data designer can be used to graphically edit database schemas, including typed tables, primary and foreign keys and constraints. It can also be used to design queries from the graphical view.

6.Mapping designer

The mapping designer is used by LINQ to SQL to design the mapping between database schemas and the classes that encapsulate the data.

7.Open Tabs Browser

The open tabs browser is used to list all open tabs and to switch between them. It is invoked using `CTRL+TAB`.

8.Properties Editor

The *Properties Editor* tool is used to edit properties in a GUI pane inside Visual Studio. It lists all available properties for all objects including classes, forms, web pages and other items.

9.Object Browser

The *Object Browser* is a namespace and class library browser for Microsoft .NET. It can be used to browse the namespaces in managed assemblies .

10.Solution Explorer

The files in a solution are arranged hierarchically, which might or might not reflect the organization in the file system. The *Solution Explorer* is used to manage and browse the files in a solution.

11.Data Explorer

Data Explorer is used to manage databases on Microsoft SQL Server instances. It allows creation and alteration of database tables .

12 .Server Explorer

The *Server Explorer* tool is used to manage database connections on an accessible computer. It is also used to browse running Windows Services, performance counters, Windows Event Logand message queues and use them as a datasource.

Extensibility

Visual Studio allows developers to write extensions for Visual Studio to extend its capabilities. These extensions "plug into" Visual Studio and extend its functionality. Extensions come in the form of *macros*, *add-ins*, and *packages*. Macros represent repeatable tasks and actions that developers can recordprogrammatically for saving, replaying, and distributing. Macros, however, cannot implement new commands or create tool windows. They are written using Visual Basic and are not compiled.

Add-Ins provide access to the Visual Studio object model and can interact with the IDE tools. Add-Ins can be used to implement new functionality and can add new tool windows. Add-Ins are plugged into the IDE via COM and can be created in any COM-compliant languages. Packages are created using the Visual Studio SDK and provide the highest level of extensibility. They can create designers and other tools, as well as integrate other programming languages. Extensions are supported in the Standard versions of Visual Studio 2005. Express Editions do not support hosting extensions.

EDITONS

Microsoft includes 4 types of Editions as follows :

1.Community

It is a **free** version which is announced in 2014. *All other editions are paid*. This contains the features similar to Professional edition. Using this edition, any individual developer can develop their own free or paid apps like **.***Net applications***,** Web applications and many more .

This edition has some limitations. For example, if your organization have more than 250 PCs and having annual revenue greater than $1 Million then you are not permitted to use this edition. In a non-enterprise organization, up to five users can use this edition. Its main purpose is to provide the Ecosystem and Languages support.

2. Professional

It is the commercial edition of Visual Studio. It comes in Visual Studio 2010 and later versions. It provides the support for XML and XSLT editing and includes the tool like Server Explorer and integration with Microsoft SQL Server.

Microsoft provides a free trial of this edition and after the trial period, the user has to pay to continue using it. Its main purpose is to provide Flexibility, Productivity, Collaborationand Subscriber benefits like Microsoft software, plus Azure, Pluralsight, etc.

3.Enterprise

It is an integrated, end to end solution for teams of any size with the demanding quality and scale needs. Microsoft provides a 90-days free trial of this edition and after the trial period, the user has to pay to continue using it. The main benefit of this edition is that it is highly scalable and deliver high-quality software.

4.Test Professional

The Test Professional edition was introduced with Visual Studio 2010. Its focus is the dedicated tester role. It includes support for the management of test environments, the ability to start and report on tests and to connect to Azure DevOps. It does not include support for development or authoring of tests.

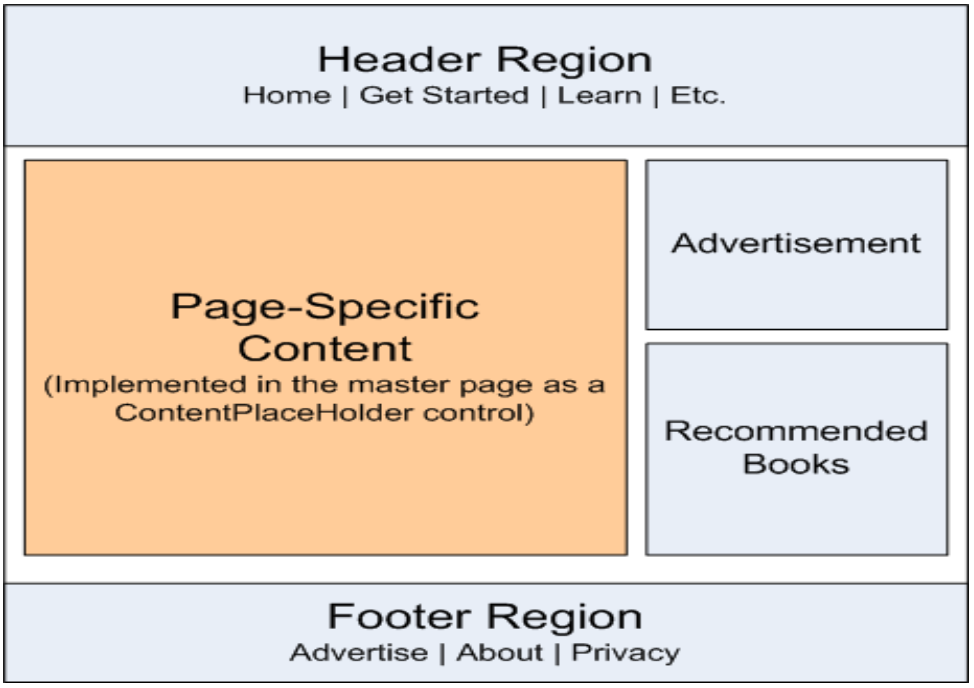
Microsoft Visual Studio has a vast appearance in Web Development .We can make apps , design them , and also can Develop them in order to achieve a Good and a Valuable Product. It is available in many languages such as Chinese, Czech, English, French, German, Italian, Japanese, Korean, Polish, Portuguese , Russian, Spanish and Turkish and many others .It is licenced by Freemium and is available at visualstudio.microsoft.com .

In Visual Studio ,If we need to creat a website , we get a wide variety of options in doing so. This at the priority includes Master Page and then WebForms .

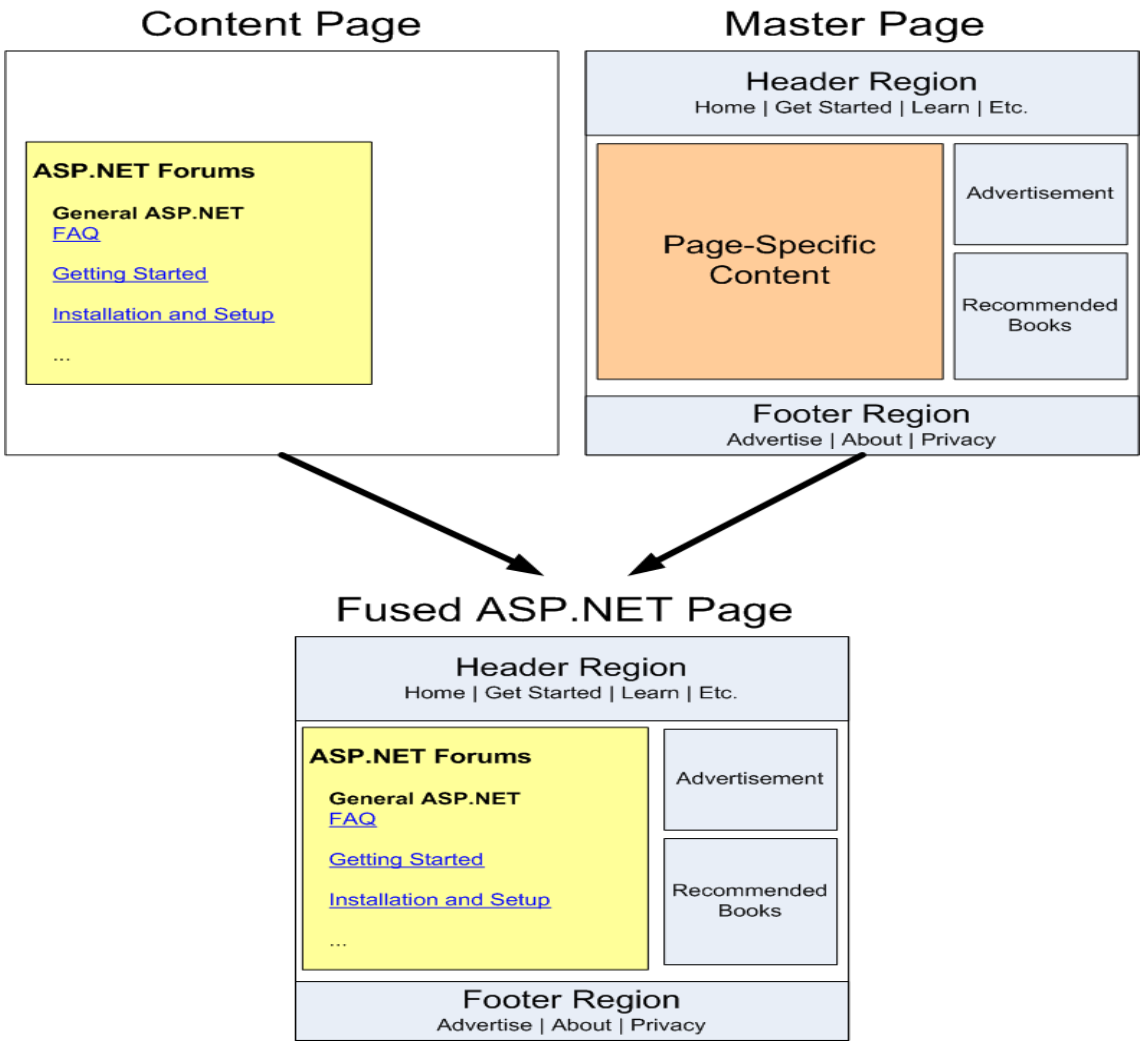
Master Page

Creating a site-wide page template in ASP.NET is possible through the use of *master pages*. In a nutshell, a master page is a special type of ASP.NET page that defines the markup that is common among all *content pages* as well as regions that are customizable on a content page-by-content page basis. Whenever a master page's layout or formatting is changed, all of its content pages' output is likewise immediately updated, which makes applying site-wide appearance changes as easy as updating and deploying a single file .

The master page defines the common site-wide layout the markup at the top, bottom, and right of every page - as well as a Content Place Holder in the middle-left, where the unique content for each individual web page is located. Te master pages had following layout.



Once a master page has been defined it can be bound to new ASP.NET pages through the tick of a checkbox. These ASP.NET pages - called content pages - include a Content control for each of the master page's Content Place Holder controls. When the content page is visited through a browser the ASP.NET engine creates the master page's control hierarchy and injects the content page's control hierarchy into the appropriate places. This combined control hierarchy is rendered and the resulting HTML is returned to the end user's browser. Consequently, the content page emits both the common markup defined in its master page outside of the Content Place Holder controls and the page-specific markup defined within its own Content controls. Figure illustrates this concepts .



The master page's layout is defined using a series of HTML elements. The top Content contains the markup that appears at the top of each page, while the main Content, left Content, and footer Content s are used to display the page's content, the left column, and the "Powered by Microsoft ASP.NET" icon, respectively. In addition to adding these elements, I also renamed the ID property of the primary control from Content Place Holder1 to Main Content .

<%@ Master Language="C#" AutoEventWireup="true" CodeFile="Site.master.cs" Inherits="Site" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

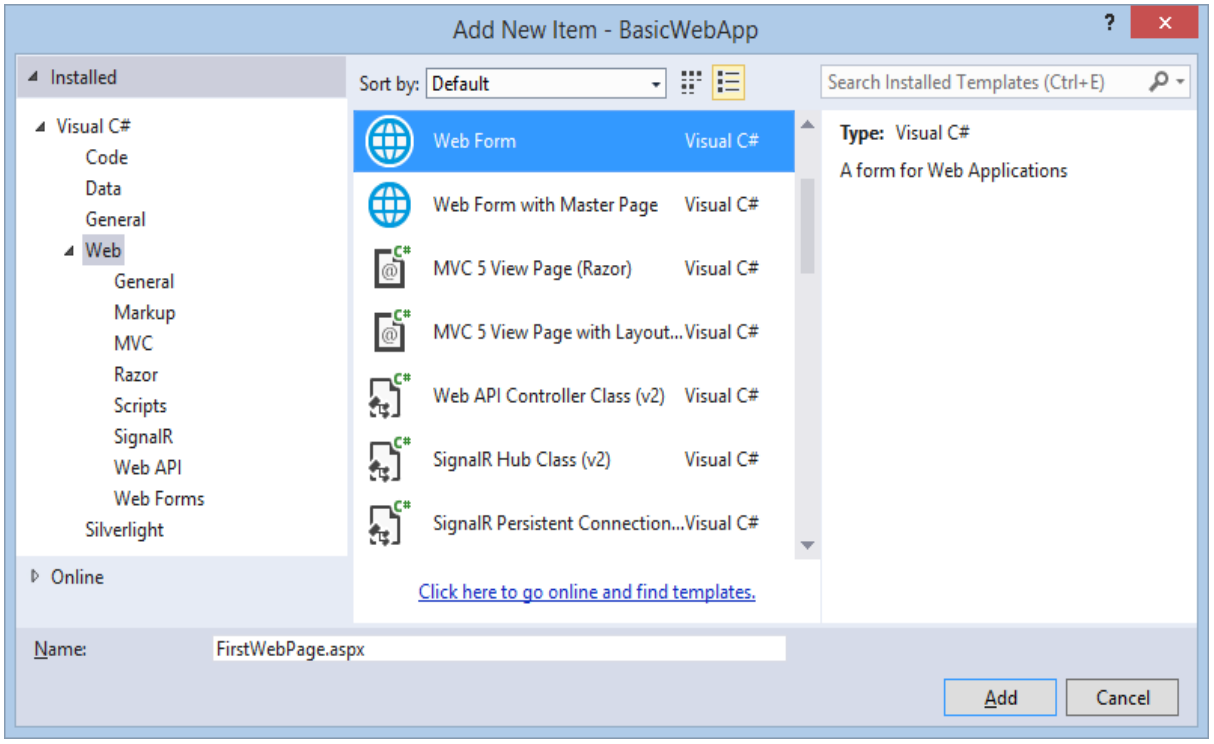
```
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>Untitled Page</title>
<asp:ContentPlaceHolder id="head" runat="server">
</asp:ContentPlaceHolder>
</head>
<body>
<form id="form1" runat="server">
<div>
<asp:ContentPlaceHolder id="ContentPlaceHolder1" runat="server">
</asp:ContentPlaceHolder>
</div>
</form>
</body>
</html>
```

WebForm

ASP.NET Web Forms is a part of the ASP.NET web application framework and is included with Visual Studio. It is one of the four programming models you can use to create ASP.NET web applications, the others are ASP.NET MVC, ASP.NET Web Pages, and ASP.NET Single Page Applications.

Web Forms are pages that your users request using their browser. These pages can be written using a combination of HTML, client-script, server controls, and server code. When users request a page, it is compiled and executed on the server by the framework, and then the framework generates the HTML markup that the browser can render. An ASP.NET Web Forms page presents information to the user in any browser or client device.

Using Visual Studio, you can create ASP.NET Web Forms. The Visual Studio Integrated Development Environment (IDE) lets you drag and drop server controls to lay out your Web Forms page. You can then easily set properties, methods, and events for controls on the page or for the page itself. These properties, methods, and events are used to define the web page's behaviour, look and feel, and so on. To write server code to handle the logic for the page, you can use a .NET language like Visual Basic or C#.



ASP.NET Web Forms offer:

- Separation of HTML and other UI code from application logic.
- A rich suite of server controls for common tasks, including data access.
- Powerful data binding, with great tool support.
- Support for client-side scripting that executes in the browser.

Features of ASP.NET Web Forms

1.Server Controls
ASP.NET Web server controls are objects on ASP.NET Web pages that run when the page is requested and that render markup to the browser.

2.Working with Data
ASP.NET provides many options for storing, retrieving, and displaying data. In an ASP.NET Web Forms application, you use data-bound controls to automate the presentation or input of data in web page UI elements such as tables and text boxes and drop-down lists.

3.Client Script and Client Frameworks
You can enhance the server-based features of ASP.NET by including client-script functionality in ASP.NET Web Form pages.

4.Routing
URL routing allows you to configure an application to accept request URLs that do not map to physical files.

5.**State Management**
ASP.NET Web Forms includes several options that help you preserve data on both a per-page basis and an application-wide basis.

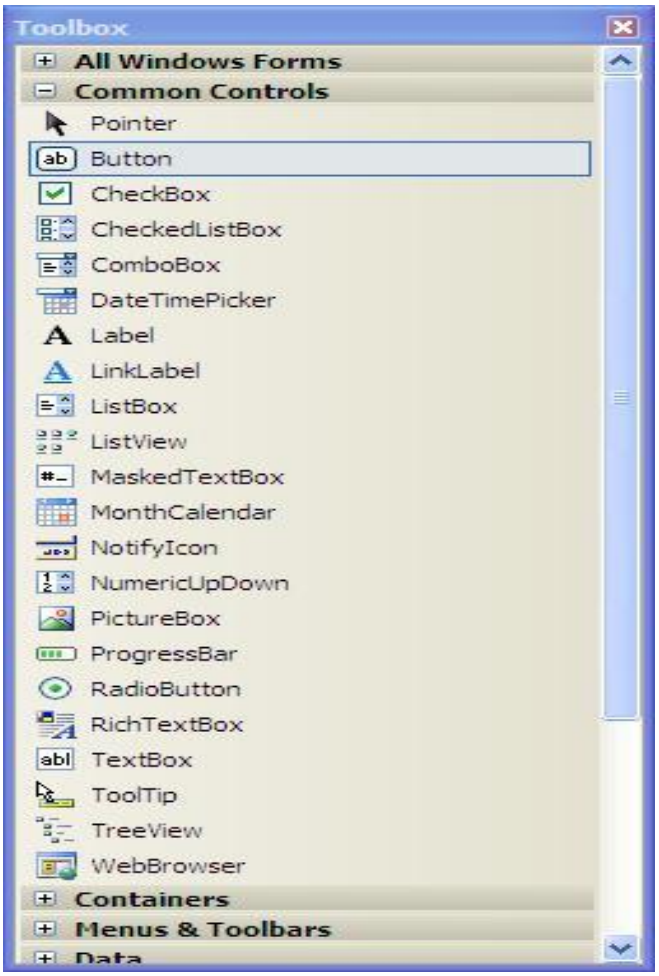
6.Security
In ASP.NET Web Forms, you can add extensibility points and configuration options that enable you to customize various security behaviors in ASP.NET Web Forms.

7.Debugging and Error Handling
Debugging and error handling are well supported within ASP.NET Web Forms so that your applications compile and run effectively.

8.Deployment and Hosting
Visual Studio, ASP.NET, Azure, and IIS provide tools that help you with the process of deploying and hosting your Web Forms application.

Visual Studio also includes many tools which are must needed to do a particular project.These all tools can be found in Toolbox which in at the View button of menu bar.Some of the tools used in the Project includes :

1.Label : Use to put a Label in the Webform.
2.Button : Use to add a button in Webform.
3.DropDownList : This is use to add multiple options.
4.Image : Use to add a image to the webform.
5.Radio button : Use to add Radio Buttons at specific blocks.
6.Table : Use to add Table in Webform
7. Textbox : Use to add textbox in Webform
8.Validations : These are the Warnings Provided within certain blocks in a webform, mostly when preparing Registration Forms. These includes many types of validations such as Compare Validator , Custom Validator , Range Validator, Regular Expression Validator, Required Field Validator,etc.
9.Navigations : These are the routes given in Web forms or Master page to switch from one page to another , or one category to another.



Chapter 7

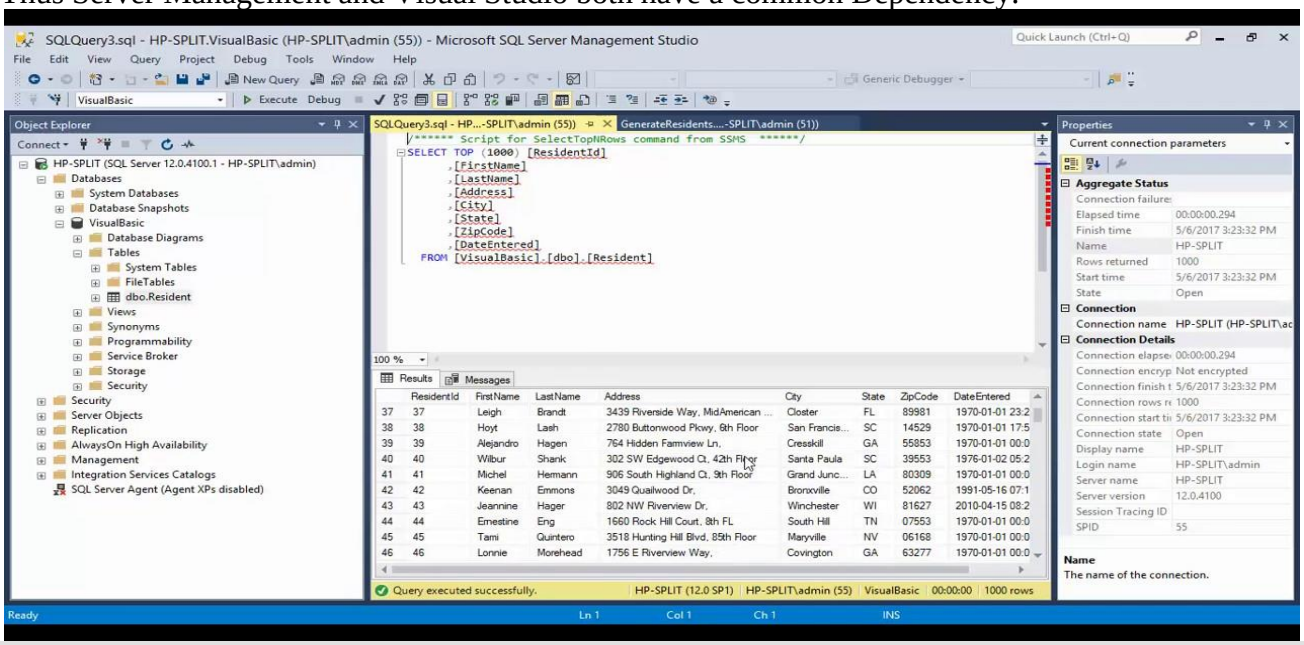
SQL SERVER MANAGEMENT STUDIO

MySQL is an open-sourcerelational database management system. Its name is a combination of "My" and "SQL", the abbreviation for Structured Query Language.

SQL Server Management Studio is a software application first launched all components within Microsoft SQL Server. It's the successor to the Enterprise Manager in SQL 2000 or before.

A central feature of SSMS is the Object Explorer, which allows the user to browse, select, and act upon any of the objects within the server .It also shipped a separate Express edition that could be freely downloaded, however recent versions of SSMS are fully capable of connecting to and manage any SQL Server Express instance. Microsoft also incorporated backwards compatibility for older versions of SQL Server thus allowing a newer version of SSMS to connect to older versions of SQL Server instances. It also comes with Microsoft SQL Server Express 2012, or users can download it separately.

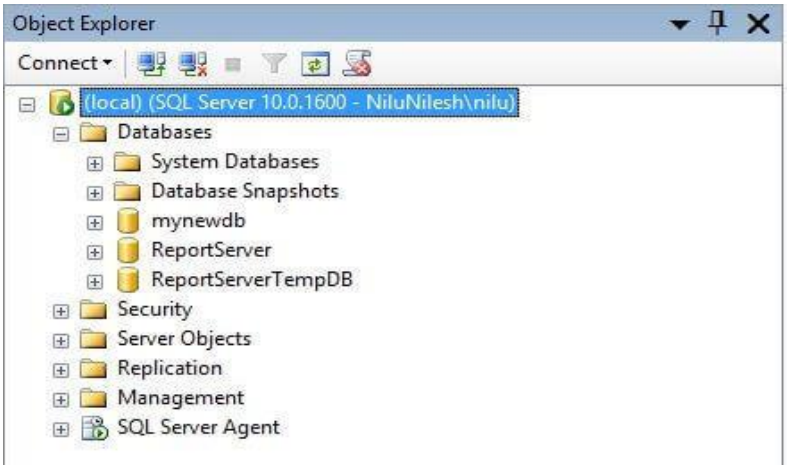
Server Management Studio And Visual Studio are used togetherly in order to form connections .If you are preparing a form in visual studio in order to attract a crowd to get themselves registered at specific site . If someone fills that form then the information provided by that person is get stored in database through Server management.
Thus Server Management and Visual Studio both have a common Dependency.



Connection Between ServerManagement and Visual Studio

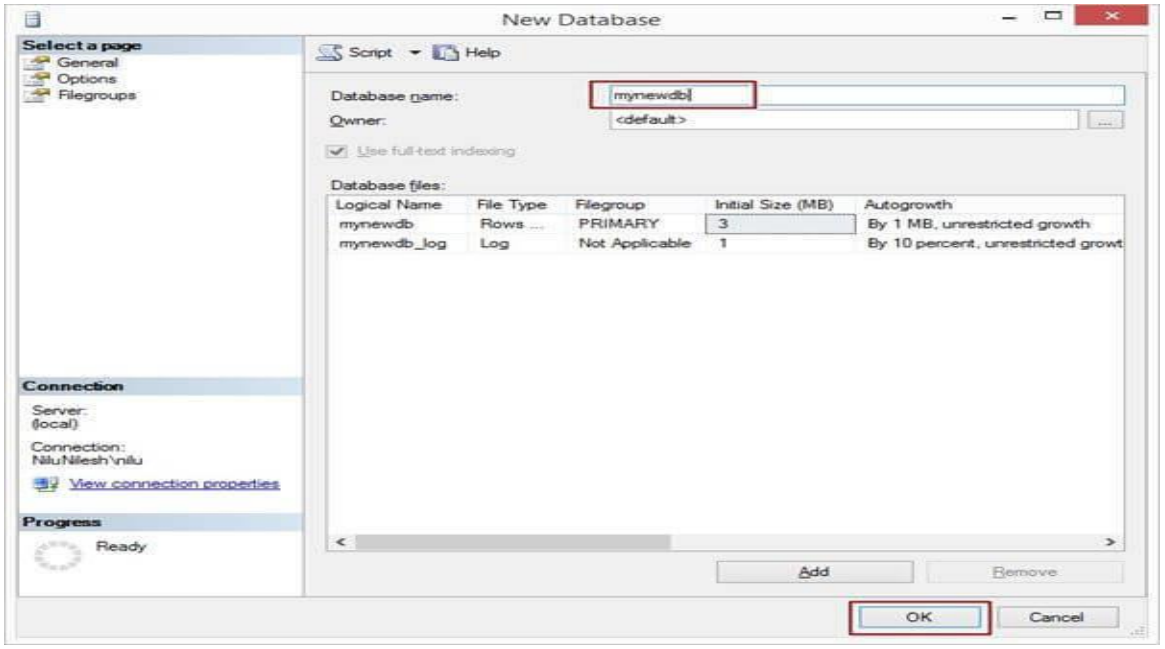
Open SQL Server Management Studio. If you are using Window Authentication then your Server Name is local, if you are using SQL Server Authentication then during installation, whatever the server name is, you provide what you gave there. Moreover if you are using SQL Server Authentication than it will ask you for Username and Password, that also comes from the installation process, so take care about these things during installation.

Click on Connect. If things are correct then it will open SQL Server Studio for you.

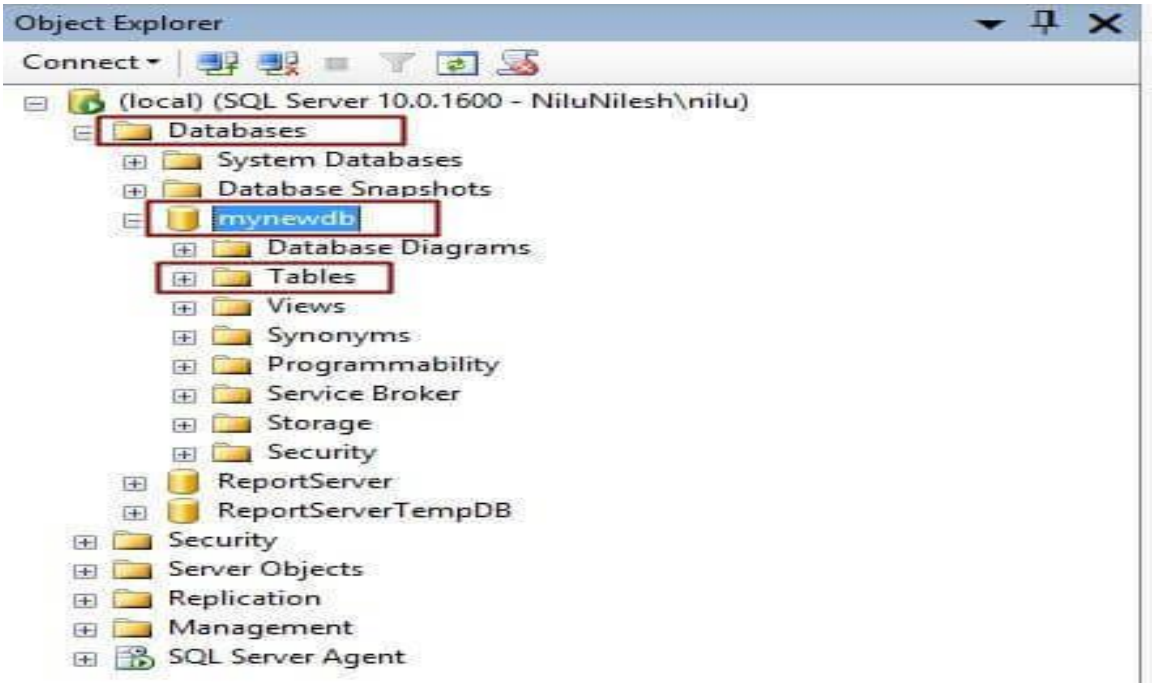


This is the Object Explorer, the same as Server Explorer in VS10. Here you can make a new database, tables, Store Procedures and many more things.

Let's start by creating a new database. Click on Database in the Object Explorer then New Database. The New Database window will open. Provide your database name and click on Ok. See the following image

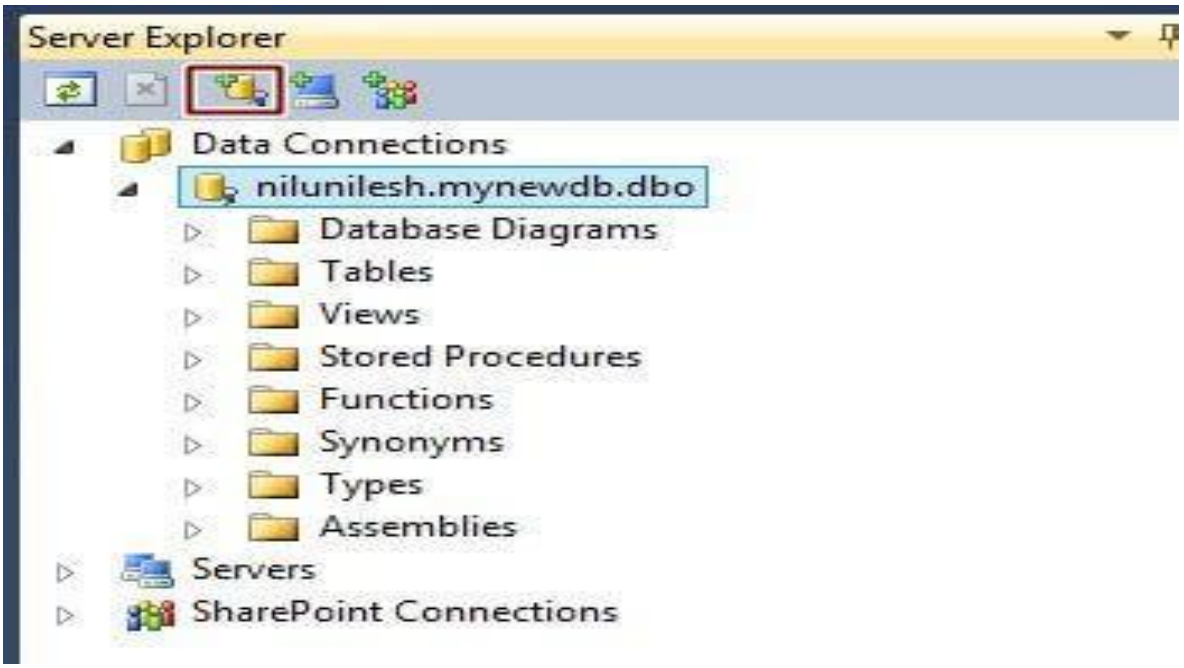


You can see your database under Database, see the following image.

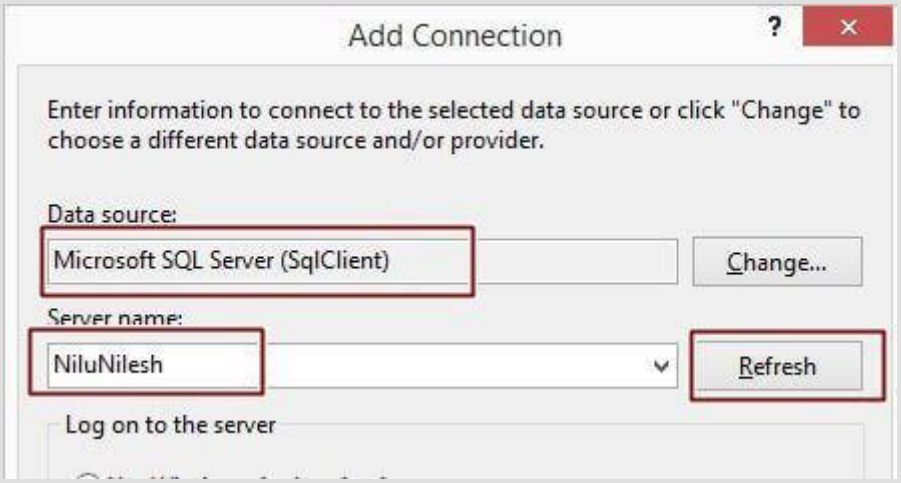


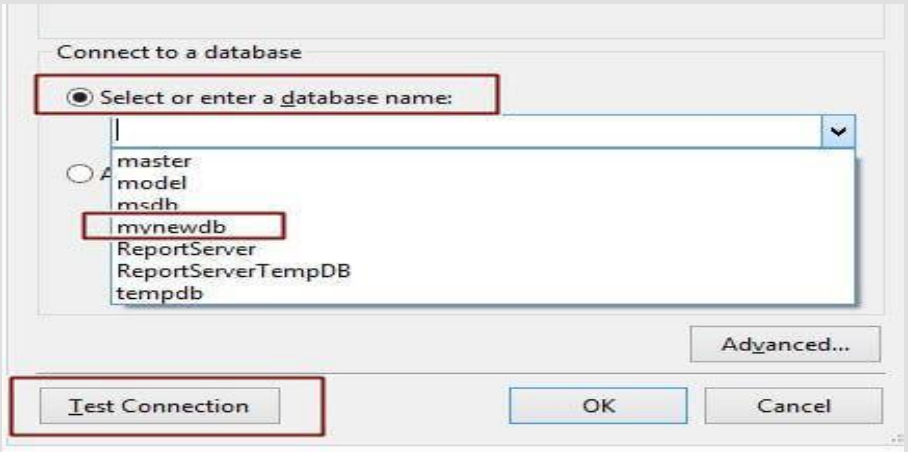
Here make a new table by going to mynewdb -> Table -> New Table.

Open Visual Studio 2010 then open Server Explorer. Click on Connect to database.



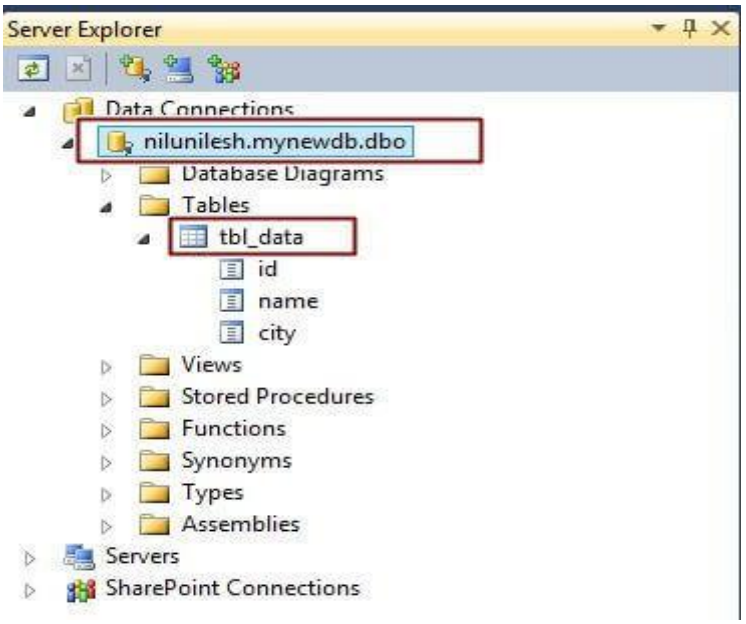
It will open an Add Connection window as in the following image. There you need to provide the username that comes automatically if you click on refresh, if not come then specify your server name.





Once you have your database your work is done, just check it out by Test Connection, if you get the message Test connection successful then everything is right and you can proceed by pressing OK.

After pressing OK, check out in Server Explorer, you have your database and tables under your servername.databasename.dbo file, see the following image.



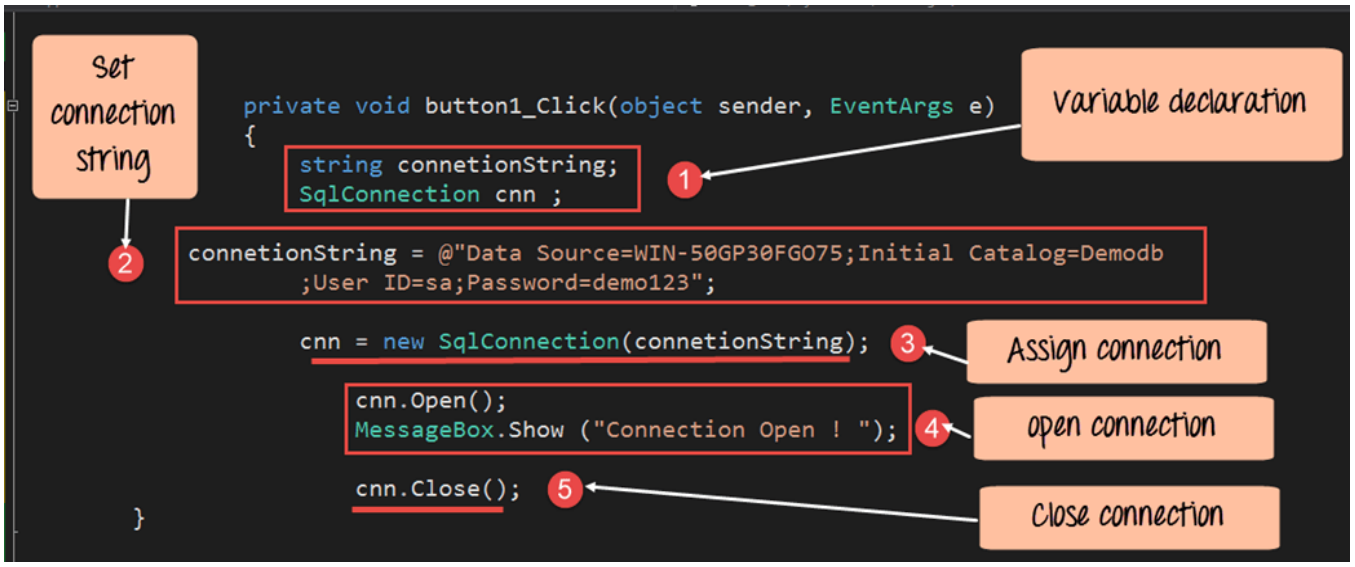
This is how you can connect Visual Studio and Server Management , to Save you Data on the Database .

Chapter 8

Connectivity in Database

I. Creating a Database Connection Using SQL Developer

A database connection is a SQL Developer object that specifies the necessary information for connecting to a specific database as a specific user of that database. You must have at least one database connection (existing, created, or imported) to use SQL Developer.

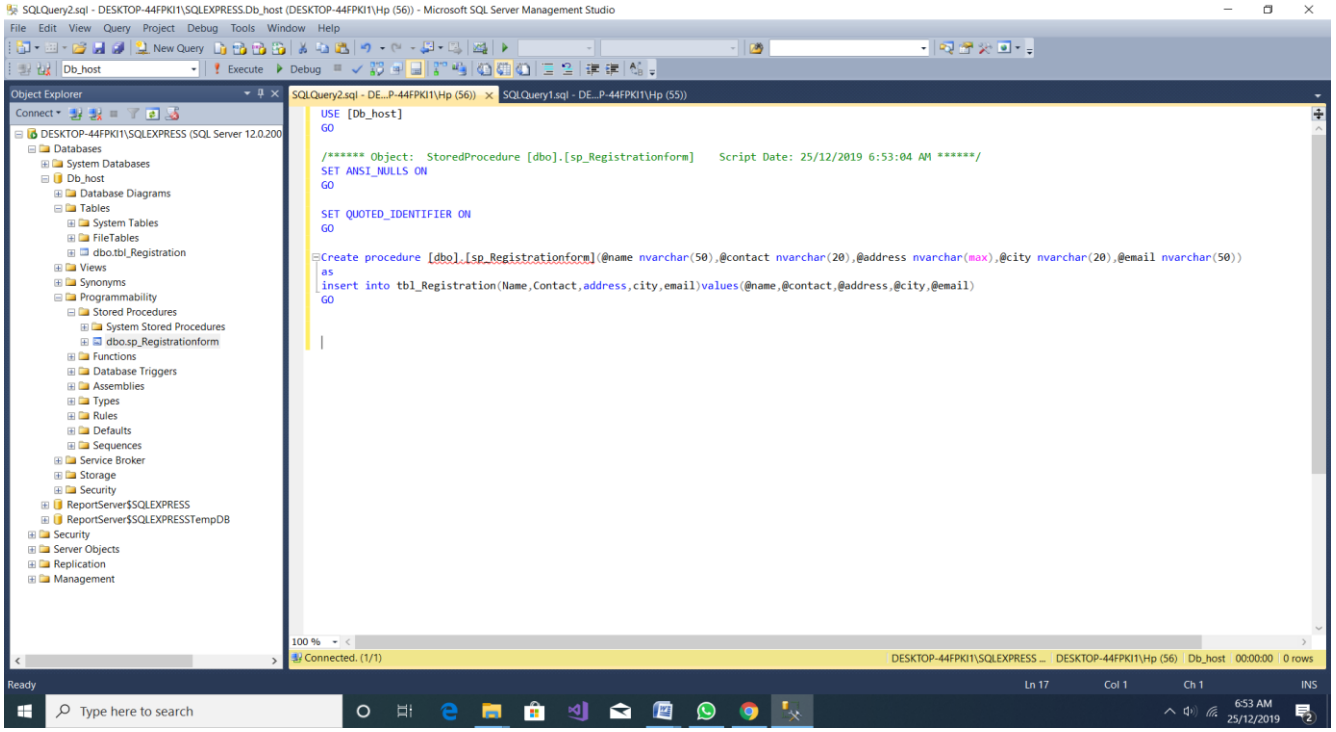



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace DemoApplication1
{
 public partial class Form1 : Form
 {
  public Form1()
```

```
 {
  InitializeComponent();
 }

 private void button1_Click(object sender, EventArgs e)
  {
   string connetionString;
   SqlConnection cnn;
   connetionString = @"Data Source=WIN-50GP30FGO75;Initial Catalog=Demodb;User
ID=sa;Password=demol23";
   cnn = new SqlConnection(connetionString);
   cnn.Open();
   MessageBox.Show("Connection Open  !");
   cnn.Close();
  }
 }
}
```

2. What is the SQL Stored Procedure?

A stored procedure in SQL is a type of code in SQL that can be stored for later use and can be used many times. So, whenever you need to execute the query, instead of calling it you can just call the stored procedure. Values can be passed through stored procedures.
The basic role of comments in SQL is to explain SQL statements and also to prevent the execution of some statements.



II.QUERIES

1. Query for Selecting Columns from a Table

This is perhaps the most widely used SQL queries examples. In the example below, we are extracting the "Student_ID" column or attribute from the table "STUDENT"

.

SELECT * FROM *table_name*

2. Query for Updating a View

This query updates the view named 'Product List' – and if this view doesn't exist, then the Product List view gets created

as specified in this query.

```
1   CREATE OR REPLACE VIEW [ Product List] AS
2   SELECT ProductID, ProductName, Category
3   FROM Products
4   WHERE Discontinued = No;
```

3.Delete command syntax

The basic syntax of the delete command is as shown below.

```
DELETE FROM `table_name` [WHERE condition];
```

4.Insert Query

```
INSERT INTO  `movies` (`title`, `director`, `year_released`, `category_id`) VALUES ('The Great Dictator', 'Chalie Chaplie', 1920, 7);
INSERT INTO `movies` (`title`, `director`, `category_id`) VALUES ('sample movie', 'Anonymous', 8);
INSERT INTO  movies (`title`, `director`, `year_released`, `category_id`) VALUES ('movie 3', 'John Brown', 1920, 8);
```

Chapter 9

References

WEBSITES :-

greeksforgreeks.org
fresh2refresh.com
sitebay.com
w3school.com
beginnersbook.com
docs.microsoft.com
softwaretestingheil.com
data-flair.training