# Introduction

To

# Microsoft Visual C++ 6.0

By: Shahed Shahir

**Email:** *shahir@uwindsor.ca* 

Office hour: Mondays 9:00am-11:00am

# Requirements

- Object Oriented Programming
- C++ programming

## Introduction

Advantage:

Microsoft Visual C++ is a powerful tool. Visual C++ is inherited window's functionality. In fact, developers can manipulate hardware and software at the same time; however, no other programming platforms can provide such a powerful tool for users in a windows operating system.

Microsoft Visual C++ includes Comprehensive debug tools.

## Introduction

### Disadvantage:

In order to monopolize computer software market, Microsoft does not reveal the key functions to public.

Reference

**Microsoft Developer Network** 

http://msdn.microsoft.com/

Online Help US\$3000.00 for helping in a single project US\$240.00 for a single solution

My recommendation is to learn C++ and Object Oriented software Programming)

**Computer Aided Design II (Professor M. Sid-Ahmed)** 

# Outline

- I. Console Application
- II. Dialog Based Application

## I. Console Application

#### • Start new project

| 🧖 Microsoft Visual  | C++  | _ 7×    |
|---|--|---------|
|   | oject <u>B</u> uild <u>T</u> ools <u>W</u> indow <u>H</u> elp  |         |
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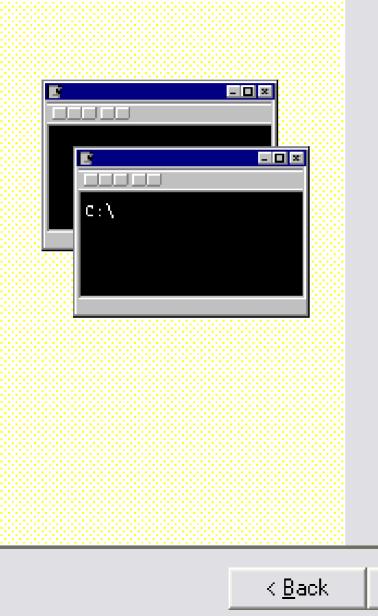
# 1. Choose the project type as a Win32 console Application.

#### 2. Type the project name as you wish.

| New   | ? 🔀   |  |  |  |
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| Files Projects Workspaces Other Documents   |   |  |  |  |
| <ul> <li>ATL COM AppWizard</li> <li>Cluster Resource Type Wizard</li> <li>Clustom AppWizard</li> <li>Custom AppWizard</li> <li>Custom AppWizard</li> <li>Database Project</li> <li>DevStudio Add-in Wizard</li> <li>Extended Stored Proc Wizard</li> <li>ISAPI Extension Wizard</li> <li>MFC ActiveX ControlWizard</li> <li>MFC AppWizard (dll)</li> <li>MFC AppWizard (exe)</li> </ul> | Project <u>name:</u> Logation: C:\Documents and Settings\Sha  C[reate new workspace Add to current workspace Dependency of: |  |  |  |
| New Database Wizard It Utility Project Vision AppWizard Win32 Application   | Platforms:<br>Win32<br>OK Cancel  |  |  |  |

#### Win32 Console Application - Step 1 of 1





What kind of Console Application do you want to create?

- O An empty project.
- A simple application.
- A "Hello, World!" application.
- $\bigcirc$  An application that supports <u>M</u>FC.

<u>F</u>inish

Cancel

Next >

#### New Project Information



Win32 Console Application will create a new skeleton project with the following specifications:

+ Simple Win32 console application.

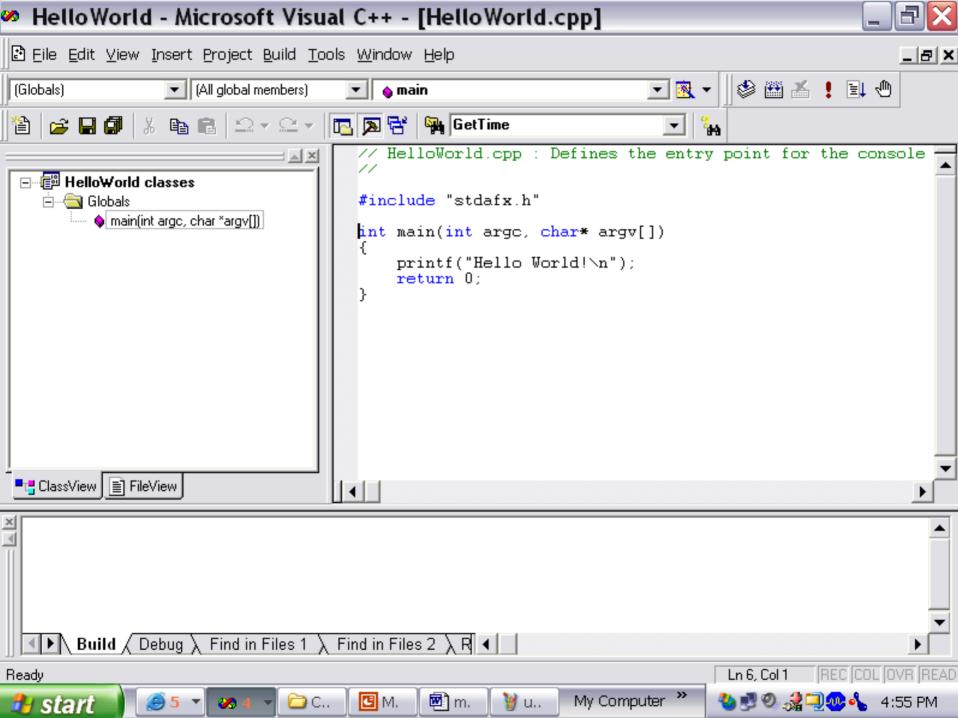
+ Prints "Hello, World!" to the console and then exits.

Main: HelloWorld.cpp Precompiled Header: Stdafx.h and Stdafx.cpp

Project Directory:

C:\Documents and Settings\Shahed\My Documents\88-446\HelloWorld

| OK |
|----|
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# **EXAMPLE ONE**

## **II. Dialog Based Application**

- 1. Start new project
- 2. Choose the project type and name

## Start new project

| 🥙 Microsoft Visual C++   |             | 3 🗙   |
|--|-------------|-------|
|  |             |       |
| D_New         Ctrl+N         Image: Ctrl+O           Image: Open         Image: Open           Image: Open         Image: Open           Image: Open         Image: Open           Image: Open | : E         |       |
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| ▼ Files 1 \ Find in Files 2 \ Results \ SQL Debugging /  |             | •     |
| Creates a new document, project or workspace   | <b></b> 1:1 | L3 PM |

### **Microsoft Fundation Class Project**

- •Choose Application Wizard for MFC
- •Type the desire project name

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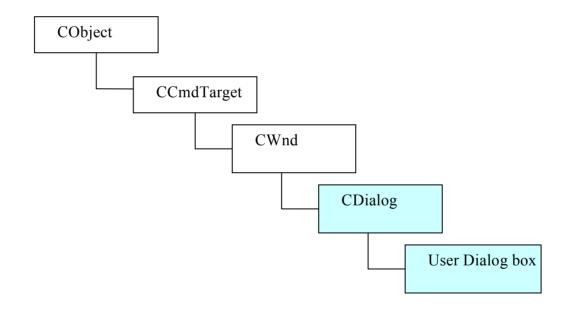
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#### **Microsoft Foundation Class Library Version 6.0**

| CObject                  |                       | -                       |                                |                                 |                           | Classes Not Derived              |                                      |
|--------------------------|-----------------------|-------------------------|--------------------------------|---------------------------------|---------------------------|----------------------------------|--------------------------------------|
| Application Architecture |                       |                         | File Services                  | Graphical Drawing               | Arrays                    | from CObject                     |                                      |
| CCmdTarget               |                       | -user objects           | -CFile                         | - CD C                          | -CArray (template)        | Internet<br>Sorvor ABI           |                                      |
| -CWinThread              | CDocument             | Exceptions              | - CM em Fil e                  | -CClientDC                      | -CByteArray               | Server API<br>CHtmlStream        | Support Classes<br>CCmdUI            |
| CWinApp                  | -COleDocument         | CException              | _CSharedFile                   | -CMetaFileD C                   | -CDWordArray              | CHttpFilter                      |                                      |
| COleControlModule        | COleLinkingDoc        | _CArchiveException      | - COleStream File              | _CPaintDC                       | _CObArray                 | CHttpFilterContext               | CDaoFieldExchange                    |
| Luser application        | COleServerDoc         | _CDaoException          | CMonikerFile                   | CWindowDC                       | _CPtrArray                | CHttpServer                      | _                                    |
| -CDocTemplate            | CRichEditDoc          |                         | CAsyncMonikerFile              | Control Support                 |                           |                                  | CDataExchange                        |
| -CSingleDocTemplate      | user documents        | CFileException          | CD ataPathProperty             | - CD ock State                  |                           | CHttpServerContext               | CDBVariant                           |
| -CMultiDocTemplate       | -CDocItem             | -CInternetException     |                                |                                 | -CWordArray               | Run-time Object<br>Model Support | CFieldExchange                       |
| -COleObjectFactory       | COleClientItem        | -CMemoryException       | -CSocketFile                   | Graphical                       | arrays of user types      | CArchive                         | COleDataObject                       |
| LCOleTemplateServer      | -COleDocObjectItem    | -CNotSupportedException | CStdioFile                     | Drawing Objects                 |                           | CDumpContext                     | COleDispatchDriver                   |
| -COleDataSource          | -CRichEditCntrItem    | -COleException          | CInternetFile                  | -CG diObject                    | Lists<br>CList (template) | CRuntimeClass                    | CPropExchange                        |
| -COleDropSource          | user client items     | -COleDispatchException  | -CG opher File                 | -CBitmap                        | -CPtrList                 |                                  | CRectTracker                         |
| -COleDropTarget          | -COleServerItem       | -CResourceException     | CHttpFile                      | - CB rush                       | -CObList                  | Simple<br>Value Types            | CWaitCursor                          |
| -COleMessageFilter       | -CDocObjectServerItem | -CUserException         | CRecentFileList                | -CFont                          | -CStringList              | CPoint                           | Typed Template                       |
| -                        |                       | CoserException          |                                | - CPalette                      | -                         | CRect                            | Collections                          |
| -CConnectionPoint        | Luser server items    |                         |                                | - CPen                          | -lists of user types      | CSize                            | CTypedPtrArray                       |
|                          | -CDocObjectServer     |                         |                                | -CR an                          | Maps                      | CString                          | CTypedPtrList                        |
| Window Support           |                       |                         |                                |                                 | -CMap (template)          | CTime                            | CTypedPtrMap                         |
| – C W n d                | 1                     |                         |                                | Menus<br>                       | -CMapWordToPtr            | CTimeSpan                        | OLE Type                             |
| Frame Windows            | Dialog Boxes          | Views                   | Controls                       |                                 | -CMapPtrToWord            |                                  | Wrappers<br>CFontHolder              |
| -CFrameWnd               | L-CDialog             | CView                   | -CAnimateCtrl                  | Command Line<br>                | -CMapPtrToPtr             | Structures<br>CCreateContext     | CPictureHolder                       |
| -CMDIChildWnd            | -CCommonDialog        | -CCtrlView              | - CB utton                     |                                 | -CMapWordToOb             | CMemoryState                     |                                      |
| Luser MDI windows        | -CColorDialog         | -CEditView              | - CB itm apB utton             | ODBC Database<br>Support        | -CMapStringToPtr          | COleSafeArray                    | OLE Automation<br>Types              |
| -CMDIFrameWnd            | -CFileDialog          | -CListView              | - CComboBox                    | - CD at ab as e                 | -CMapStringToOb           |                                  | COleCurrency                         |
| Luser MDI workspaces     | -CFindReplaceDialog   | -CRichEditView          | - CCom boB ox Ex               | CRecordset                      | -CMapStringToString       | CPrintInfo                       | COleDateTime                         |
| _CMiniFrameWnd           | -CFontDialog          | _CTreeView              | -CD ateTimeCtrl                | Luser recordsets                | -maps of user types       |                                  | COleDateTimeSpan                     |
| user SDI windows         | -COleDialog           | CScrollView             | -CEdit                         | -CLongBinary                    | Internet Services         |                                  | COleVariant                          |
| _COleIPFrameWnd          | -COLeBusyDialog       | _user scroll views      | -CHeaderCtrl                   |                                 | -CInternetSession         |                                  |                                      |
| -CSplitterWnd            | -COleChangeIconDialc  | cFormView               | -CHotKeyCtrl                   | DAO Database<br>Support         | -CInternetConnection      |                                  | <b>Synchronization</b><br>CMultiLock |
| Control Bars             | -COLeChangeSourceDi   | alog _user form views   | -CIPAddressCtrl                | - CD aoD atabase                | -CFtpConnection           |                                  | CSingleLock                          |
| -CControlBar             | -COleConvertDialog    | -CD aoRecordView        |                                | - CD aoQuer y Def               | -CGopherConnection        |                                  | Comgrozook                           |
| -CDialogBar              | _COleInsertDialog     | -CHtmlView              | -CCheck ListB ox               | - CD aoRecordset                | CHttpConnection           |                                  |                                      |
| _COleResizeBar           | _COIeLink sDialog     | -COleDBRecordVit        | ewCDragListBox                 | - CD aoTableDef                 | _CFileFind                |                                  |                                      |
| _CReBar                  | COleUpdateDialog      | CRecordView             | _CListCtrl                     |                                 | _CFtpFileFind             |                                  |                                      |
| _CStatusBar              | -COLePasteSpecialDial | log Luser record vi     | ewsCMonthCalCtrl               | Synchronization                 | CGopherFileFind           |                                  |                                      |
| CToolBar                 | COlePropertiesDialog  | 3                       | _COleControl                   | -CSyncObject                    | CGopherLocator            |                                  |                                      |
| Property Sheets          | -CPageSetupDialog     | -                       | - CProgressCtrl                | _CCriticalSection               |                           |                                  |                                      |
| -CProperty Sheet         | CPrintDialog          |                         | - CReBarCtrl                   | _CEvent                         |                           |                                  |                                      |
| CPropertySheetEx         | _COlePropertyPage     |                         | -CRichEditCtrl                 | -CMutex                         |                           |                                  |                                      |
|                          | _CPropertyPage        |                         | - CS croll Bar                 | CSemaphore                      |                           |                                  |                                      |
|                          | LCPropertyPageEX      |                         | -CSliderCtrl                   |                                 |                           |                                  |                                      |
|                          | Luser dialog boxes    |                         | -CSpinButtonCtrl               | Windows Sockets<br>CAsyncSocket |                           |                                  |                                      |
|                          |                       |                         | -CStatic                       | LCSocket                        |                           |                                  |                                      |
|                          |                       |                         | – CStatic<br>– CStatusB arCtrl | - COUCKEL                       |                           |                                  |                                      |
|                          |                       |                         | -CTabCtrl                      |                                 |                           |                                  |                                      |
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|                          |                       |                         | -CToolB arCtrl                 |                                 |                           |                                  |                                      |

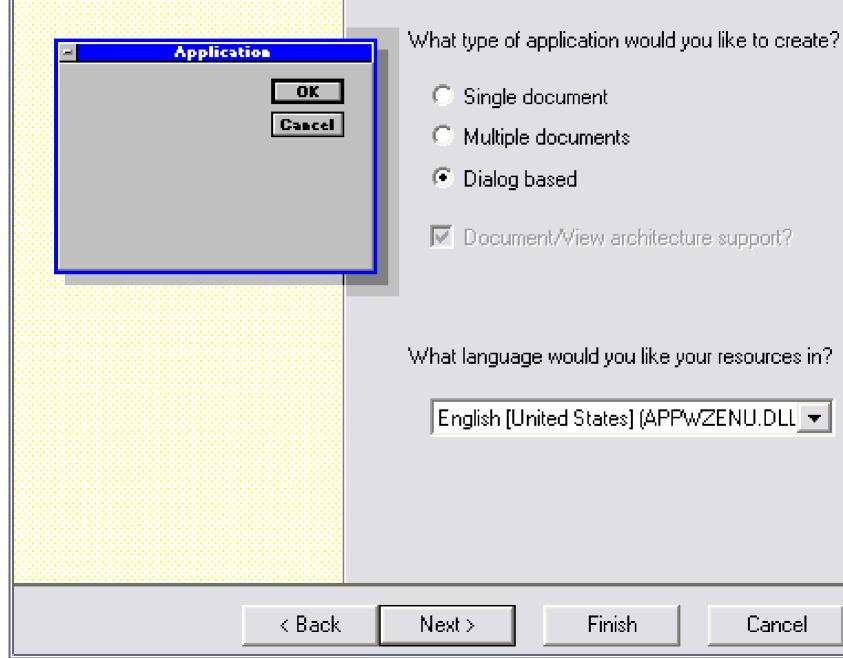
–CToolTipCtrl –CTreeCtrl



- **CObject** is the principal base class for the MFC.
- **CCmdTarget** is the base class for all the application architecture classes in MFC. All classes that handle messages are derived, directly or indirectly, from this class.
- The **CWnd** class provides the base functionality of all window classes in MFC for Window programming.
- The **CDialog** class is the base class used for displaying dialog boxes on the screen. (modal and modeless)

### MFC AppWizard - Step 1





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AppWizard will create a new skeleton project with the following specifications:

Application type of SimpleCalculator: Dialog-Based Application targeting: Win32

Classes to be created:

Application: CSimpleCalculatorApp in SimpleCalculator.h and SimpleCalculator.cpp Distant CCirculaCalculatorDista CirculaCalculatorDista and

Dialog: CSimpleCalculatorDIg in SimpleCalculatorDIg.h and SimpleCalculatorDIg.cpp

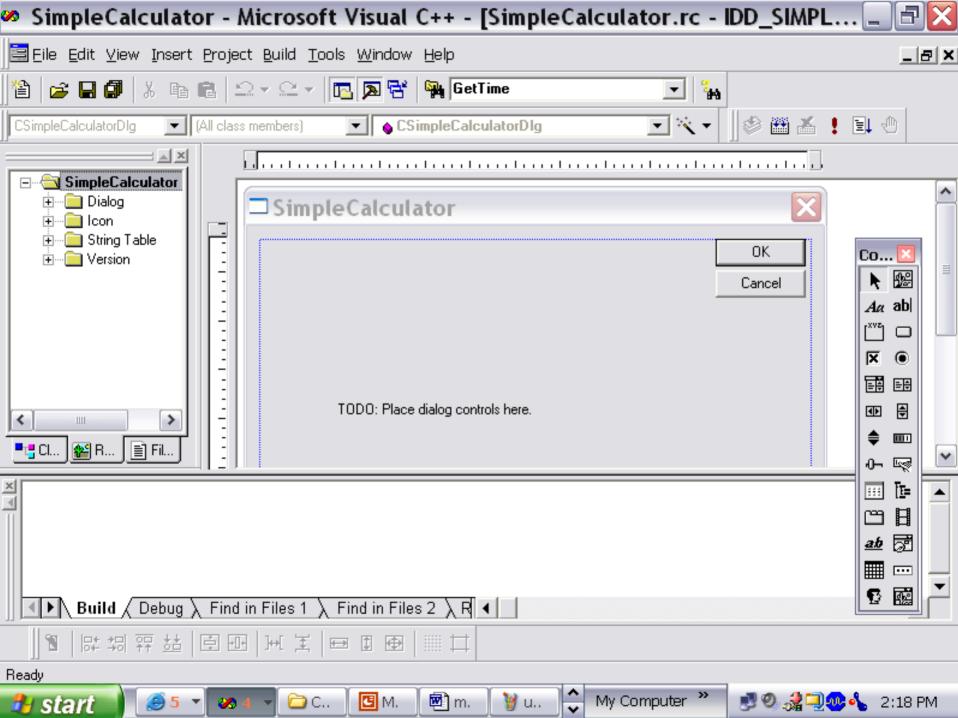
Features:

- + About box on system menu
- + 3D Controls
- + Uses shared DLL implementation (MFC42.DLL)
- + ActiveX Controls support enabled
- + Localizable text in:

English [United States]

Project Directory:

C:\Documents and Settings\Shahed\My Documents\aaa\_May2003\SimpleCalculator



# Functions

- 1. Switch
- 2. UpdateData
- 3. UpdateWindow

## 1. Switch

• The **switch** and **case** keywords evaluate *expression* and execute any statement associated the initial expression.

```
- switch( expression )
  {
  [case constant-expression:]
  ...
  [statement]
  ...
  [default:
  statement]
  }
```

### 2. UpdateData

• **UpdateData** function, which is a member function of **CWnd**, initializes and retrieves data from a dialog box class.

- Syntax:
  - BOOL UpdateData( BOOL Flag )
    - Return Value is non zero if the operation is successful; otherwise 0.
  - To initialize the Dialog box or any component on a dialog box, set input argument (*Flag*) to FALSE.
  - To retrieve Data from the Dialog box or the components on a dialog box, set input argument (*Flag*) to **TRUE**.

### 3. UpdateWindow

• **UpdateWindow**, which is a member function of **CWnd**, Updates the client area of the active window.

- syntax:
  - void UpdateWindow( );

# EXAMPLE TWO