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MDI (Multiple Document Interface):

A multiple-document interface is graphical user interface in which there can be multiple windows under one single parent window. An MDI application allows multiple documents to be open at the same time, with each document possibly having multiple views. Each window has its own child and view. Each window reacts as individual document like single document interface and that whole mechanism will be under one parent.

Its wizard creates mainly 5 classes.

- Application class
- Document class
- Mainframe class
- Child frame class
- View class

Application class(CWinApp)

This is main class in which MFC encapsulate initialization, running and termination. First one class will be derived from this class and object of this derived class(theApp) is created before application create windows. From this derived class application starts running and it contain **InitInstance** to create window and **ExitInstance** to exit from running.

Document class(CDocument)

This Class perform some operation related to document like create, save and load it. It can have multiple views. Document can be of more than one type. That type of document is associated with CDocTemplate object.

Document Class receives command from components of application and it also forward commands to other components (open file, save file).

In application one class is derived from this document class and we use that class to call overridden methods like serialize, Dump, and assert methods.

Mainframe class(CMDIFrameWndEx)

One class will be derived from this class to perform task before creating window like to set style of window which was chosen by user in wizard before. It creates icons, status bar, panels, all those inbuilt docking windows, external look of application which was selected by user in creating wizard before.

This derived class creates one parent window which has all controls of scrollbar, toolbar, menu bar etc. In MDI it is derived from CMDIFrameWnd Class.

Childframe class(CMDIChildWnd)

One class will be derived from this class to be called by mainframe. when we need to create separate view for each view one child frame object will be created. Which handle file print previews.

View Class(CView)

A view is attached to a document and acts as an intermediary between the document and the user. In MDI application one class derived from **CView** class to render an image of the document on the screen or printer. This derived class interprets user input as operations upon the document and show view in client area.

Flow of Application:

When we build MDI application it starts to compile from main cpp file of the project and that is application class of program. This class is derived from **CWinApp** and its object will be created named **theApp**. it calls method **InitInstance().** Through this method it will create object of **CMultiDocTemplate**. Which define document template for particular application.

In InitInstance it creates one object of CMainFrame class (derived from CMDIFrameWndEx). Objects of other 3 classes like child frame, document, view classes were initialized in header file of mainframe class. So system calls all those constructors of these 3 files.

In Mainframe class in OnCreate method, compiler get all information about layout and style of Application. Then it creates objects of **CMFCToolBar** class and **CMFCMenuBar.** One for Toolbar and another for menu bar. In Mainframe class all styles which are needed to create one window will be decided here.

Another class derived from CDocument class will be called here. this class contain serialize method for saving document then this class call child frame class which is derived from **CMDIChildWndEx.** It has method to print window.

Then View class will be called for drawing View of application. That will draw entire view on client area. This class will be derived from **CView** class. Extra initialization of code will be start from ending of this class's inbuilt initializations.

When we click on close button system calls exitinstance of main cpp file to exit program.

CWinApp - > CMainFrame - > CDocument -> CMDIChildWnd -> CView