Windows Controls & Concepts
Window Controls

This is a window button.
It is also called a "control".

Click here to begin

There are MANY different controls in GUI's.
Child window controls

• Button
• Checkbox
• Radiobox

• Label
• Textbox- scrollable text
• Listbox- scrollable list
• ComboBox – selection list
More Child controls

• Picturebox

• Horizontal scroll bar

• Vertical scroll bar
Terms

• Device Object
  – logical, virtual, or physical device for which a driver handles I/O requests
  – The imaging device is independent of the physical object
Terms -2

• **Device Context (CDC) - A Windows data structure**
  • Describes the drawing attributes of a device
  • All drawing calls are through a device-context object
    – encapsulates APIs for drawing lines, shapes, and text
    – allows device-independent drawing in Windows
    – can be used to draw to the screen, to the printer, or to a metafile

• **Device Classes**
  – CClientDC
    • Window client area of associated device context object
  – CWindowDC –
    • Accesses the entire screen area of device context object
Areas of a window

- Menu & toolbars (non-client area)
- Client area
Graphic Device Interface (GDI) Elements

• GDI - A set of objects and methods for GUI's

• Windows GDI Object type
  – Represented by an MFC Library Class
  – Derived from CGdiObject (never used explicitly)

• General concept
  – CDC – class of Device Context Objects
    • Create the CDC object
    • Draw (graphics or text)
    • Destroy the CDC object
Win32API example

PAINTSTRUCT ps; // paints client area only
HDC hdc; // handle to device context
TCHAR greeting[] = _T("DJ says, 'Hello World!'");

switch (message)
{
    // hWnd is arg 1 in the callback parameter list
    case WM_PAINT:
        hdc = BeginPaint(hWnd, &ps);
        TextOut(hdc, 5, 5, greeting, _tcslen(greeting));
        EndPaint(hWnd, &ps);
        break;
    Case WM_MOVE:
        Break;
}

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MFC example

```c++
void CMainFrame::OnPaint()
{
    CPaintDC dc(this); // "this" is handle to current window
    dc.TextOut(mPt.x, mPt.y, mStr); // no dereferencing of ptr dc
}

void CMainFrame::OnMove(int x, int y)
{
    CString greeting="Hello World";
    CDC* dc; // create a device context object
    dc = GetDC(); // get the context OnPaint created
    // now put some text in the client area
    (*dc).TextOut (x-pos, y-pos, greeting); // note de-referencing
}
```

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