

Compilation in C++ Programming Language

- * Windows
 - * MinGW
 - * MS Visual C++
- * Linux

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25.07.09, 2012

- # WINDOWS-1
- * MinGW
 - * Download and install MinGW development environment from the address given below:
- <http://sourceforge.net/projects/mingw/files/latest/download?source=files>
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WINDOWS-1

- * To be able to use MinGW, you need to add MinGW directory ("the folder where MinGW is installed\bin") to Windows environment variables.
- * You can set environment variables in Windows as follows:
 - * Right click "My Computer" and choose "Properties"
 - * Open "Advanced System Settings"
 - * Open "Environment Variables"
 - * Add "folder where MinGW is installed\bin" at the end of "Path" variable separating with a semicolon.

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- # WINDOWS-1
-
- The screenshot shows the Windows System Properties dialog box with the 'Environment Variables' tab selected. The 'Edit System Variable' dialog is open, showing the 'Path' variable being edited. The value 'C:\Program Files\MinGW\bin' is entered, and a red arrow points to it with the label 'MinGW folder'. The 'OK' button is highlighted with a red box.
- System Properties
- Computer Name | Hardware | Advanced | System Protection | Remote | 32
- Environment Variables
- 32
- Edit System Variable
- Variable name: Path
- Variable value: C:\Program Files\MinGW\bin
- OK Cancel
- System variables
- | Variable | Value |
|----------------|---|
| NUMBER_OF_P... | 2 |
| OS | Windows_NT |
| Path | C:\Program Files\MinGW\bin; C:\Windows\sys... |
| PATHEXT | .COM;.EXE;.BAT;.CMD;.VBS;.JS;... |
- Path Edit... Delete
- OK Cancel
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WINDOWS-1

* Write your code by using Notepad++(or Notepad)

```
/* C */
#include<stdio.h>
int main()
{
    printf("Hello World\n");
    return 0;
}

/* C++ */
#include<iostream>
using namespace std;
int main()
{
    cout<<"Hello World";
    return 0;
}
```

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- ```

/* C */
#include<stdio.h>
int main()
{
printf("Hello World\n");
return 0;
}

/* C++ */
#include<iostream>
using namespace std;
int main()
{
cout<<"Hello World";
return 0;
}

```

## WINDOWS-1

### Gcc and G++

- \* In UNIX family operating systems GNU is used to compile and link a C(or C++) program:
  - \* `gcc sourcecode.c -o executable_file.exe`
- \* If source code is written in C++:
  - \* `g++ sourcecode.cpp -o executable_file.exe`

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## WINDOWS-1

- \* Save your code file as «filename».cpp (If you used C programming language then save your file as «filename».c)
- \* Run **cmd** from start menu (or open **Command Prompt** from Accessories).
- \* In Command Prompt, move to the directory where your code file is saved by using «**cd**» command

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## WINDOWS-1

### Compilation

- \* Compiler searches for **header files** under «/usr/include» folder and **library files** under «/usr/lib» folder.
- \* By using **-c flag**, the sourcecode file can be compiled into an object file without the linking process.
  - \* `g++ main.cpp -c -o main.o`
- \* **I flag:** To include another folder **for searching header files:**
  - \* `g++ main.cpp -I/usr/X11R/include -o main`
- \* **L Flag:** To include another folder **for searching library files:**
  - \* `g++ main.cpp -L/usr/X11R/lib -o main`

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## WINDOWS-1

### Compilation and Linking

- \* Compilation and linking is done with multiple commands for projects with multiple source code files.
- \* **For example:** A project consisting of file1.cpp and file2.cpp can be compiled as follows:
  - \* `g++ file1.cpp -c -o file1.o`
  - \* `g++ file2.cpp -c -o file2.o`
- \* And linking is done by,
  - \* `g++ file1.o file2.o -o project`

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## WINDOWS-1

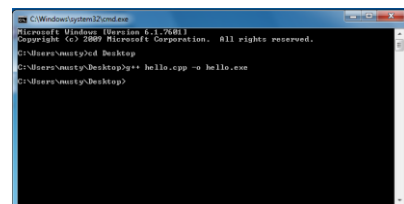
- \* Write the following command in Command Prompt, to compile&link your code and produce directly executable «.exe» program file:
  - \* `g++ «filename».cpp -o «desired_executable_filename».exe`

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## WINDOWS-1

- \* Code is compiled as below:



```

C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\mustaf\Desktop>g++ helloworld.cpp -o helloworld.exe
C:\Users\mustaf\Desktop>

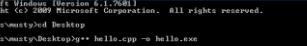
```

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# WINDOWS-1

- \* Created executable program is run as below:



```

C:\Windows\system32>cd %~dp0
Microsoft Windows [Version 6.1.7601]
(c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\youty\ Desktop>
C:\Users\youty\Desktop>g++ hello.cpp -o hello.exe
C:\Users\youty\Desktop>hello.exe
Hello World
C:\Users\youty\Desktop>

```

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# WINDOWS-1

### Some useful MS-DOS commands:

- \* **cd** : change directory (or view the address of current directory)
- \* **cls** : clear window
- \* **dir** : list all the files in the current directory
- \* **help** : list all available commands or view information on the usage of a command
- \* **notepad** : open notepad text editor

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# WINDOWS-1

[illegible]

### For compiling two cpp file

```
g++ tel_prog.cpp dosyaislemleri.cpp -o executable_file.exe
```

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# WINDOWS-1

```

C:\Kurs\Tutlar>
Microsoft Windows [Sipariş 6.1.7601]
(c) 2009 Microsoft Corporation. Tüm hakları saklıdır.
C:\Kurs\Tutlar>cd Desktop
C:\Users\Figen\Desktop>cd Hafta1
Sistem belirtilen yola ulaşamaz.
C:\Users\Figen\Desktop>cd Hafta1
C:\Users\Figen\Desktop\Hafta1>g++ tel_prog.cpp dosya_isimleri.cpp -o executable
dosya_isimleri.cpp: in member function 'void DosyaIsilustur()':
dosya_isimleri.cpp:10: error: UVAH: deprecated conversion from string constant to 'char*' [-Wwrite-strings]
C:\Users\Figen\Desktop\Hafta1>

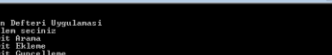
```

- \* You can execute executable\_file by writing executable\_file.exe on comand prompt.

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# WINDOWS-1



```
Kırmızı İtemi - executable_file.exe

Telefon Defteri Uygulanisi
Bir İtemi seciniz
E: Kayıt Başarı
E: Kayıt Ekleme
E: Kayıt Güncelleme
E: Kayıt Silme
E: Çıkış

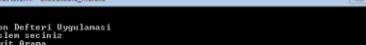
Bir seçenek giriniz (A, E, G, S, Ç) :
```

- \* You can use the programme by selecting one of A,E,G,S,C.

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## WINDOWS-1



```

C:\Kontrol\lerna> executeFile.exe

Telefon Defteri Uygulaması
Bir islen seçiniz
0: Kayıt Ekleme
1: Kayıt Silme
2: Kayıt Gösterme
3: Kayıt Güncelleme
4: Çıkış

Bir seçeneğin giriniz (0, 1, 2, 3, 4) : A
Lütfen aramak istediğiniz kişinin adını giriniz (tüm liste i in "a" basınız):
1.İşlen 1234

```

When you choose «A» and press «\*», you will see all of records.

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## WINDOWS-2

- \* MS Visual C++
- \* Install MS Visual Studio development environment
- \* Or download MS Visual Studio C++ 2010 Express from the link below and install it.
- \* <http://www.microsoft.com/visualstudio/en-us/products/2010-editions/visual-cpp-express>

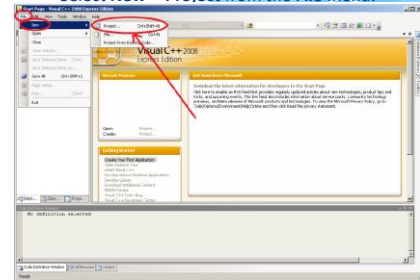
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## WINDOWS-2

For creating a new project,

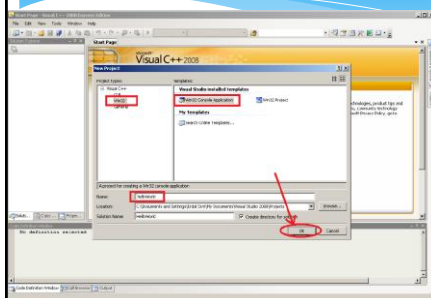
- \* Select **New-> Project** from the **File** menu.



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## WINDOWS-2



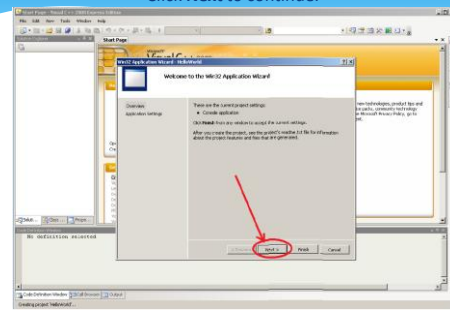
- Select **Win32** under Visual C++,
- \* From the **Templates** box on the right, choose **Win32 Console Application**.
- \* For the **Name**: write your project name.
- \* Click **OK**.

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## WINDOWS-2

Click **Next** to continue.

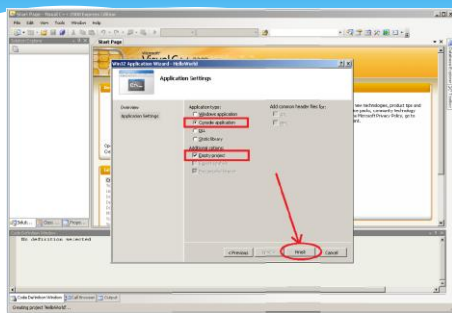


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## WINDOWS-2

Make sure that **Console Application** is selected under **Application** type and **Empty project** is selected under **Additional options**. Click the **Finish** button to finalize.

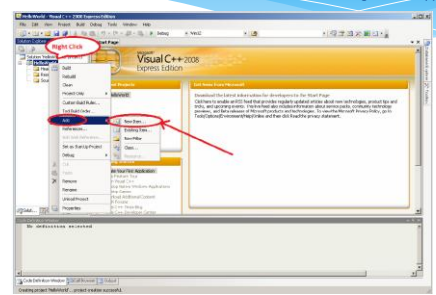


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## WINDOWS-2

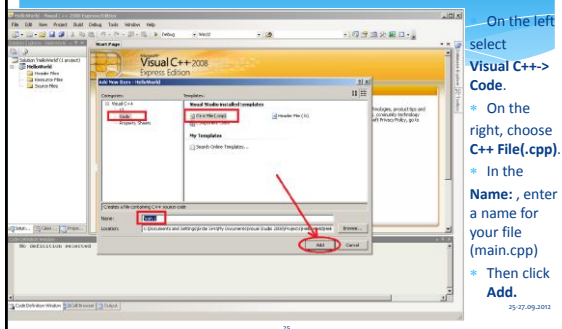
To add items in to your project. **Right-click** on the name of project in the **Solution Explorer**. Select **Add** from menu, select **New Item** and then **Add New Item** dialog box will appear.



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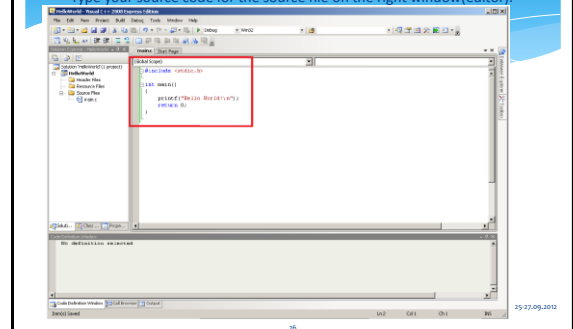
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## WINDOWS-2



## WINDOWS-2

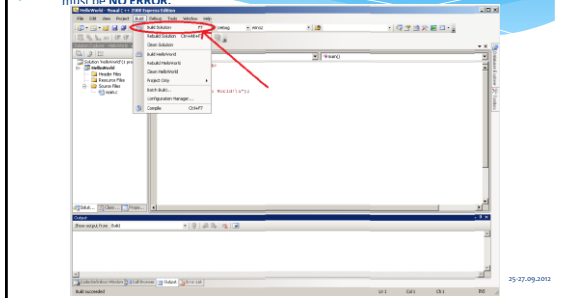
Type your source code for the source file on the right window(editor).



## WINDOWS-2

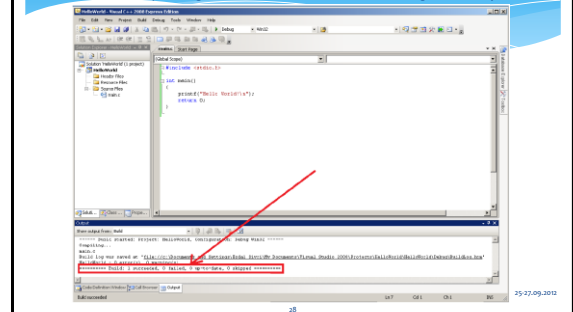
### Compiling and Running Your Program

From the Build menu, select Build Solution or press F7. Any error or warning will be displayed in the output window at the bottom. Before you can execute, there must be **NO ERROR**.

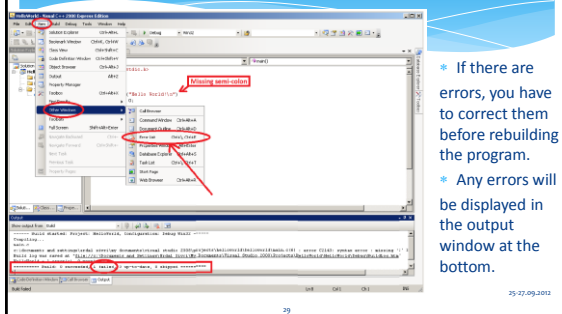


## WINDOWS-2

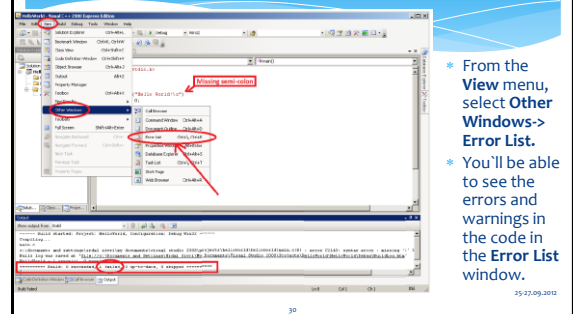
If there are no errors, you will get a «Build 1 succeeded, 0 failed» message in the Output window.



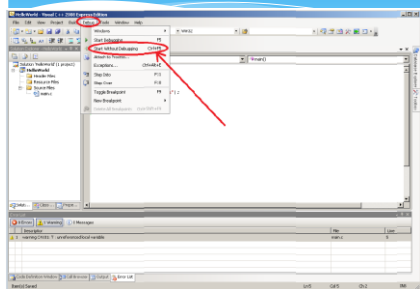
## WINDOWS-2



## WINDOWS-2



## WINDOWS-2

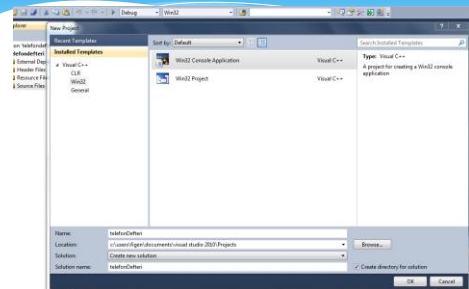


\* To execute your program, from the **Debug** menu, select **Start Without Debugging** or press **Ctrl+F5**.

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## WINDOWS-2

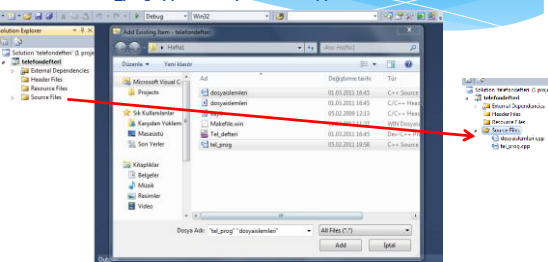
Create a project «telefonDefteri».



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## WINDOWS-2

- Right click on project name, and click **Add->Existing Item**.
- Choose **tel\_prog.cpp** and **dosyaislemleri.cpp** and add them into source files.



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## WINDOWS-2

- Choose **Build solution**, and project will be succeeded.

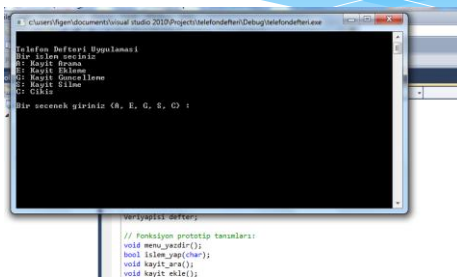
```
// Fonksiyon prototip tanımları:
void menu_yazdir();
bool islem_yap(char);
void kayit_ekle();
void kayit_sil();
void kayit_guncelle();
```

```
Build: 0 succeeded, 0 failed, 1 up-to-date, 0 skipped
```

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## WINDOWS-2

- Click **Start Debugging** or press **F5**.



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## WINDOWS-2

- After recording 2 records, if you choose «A» and press «\*» for seeing all records, output is being like below.

```
Telefon Defteri Uygulaması
Bir islem seçiniz
A: Kayıt Ekleme
B: Kayıt Silme
C: Kayıt Güncelleme
D: Kayıt Listele
E: Çıkış

Bir seçenek giriniz (A, B, C, D, E, Ç): A

Telefon defteri kayıtları:
1. İsim: Ahmet, Soyadı: Yılmaz, Telefon: 1234567890
2. İsim: Ayşe, Soyadı: Kaya, Telefon: 9876543210
```

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## LINUX

- \* Open a **terminal** window to compile your code as follows:  
`g++ «filename».cpp -o «desired_programname»`
- \* Run the executable program as follows:  
`./«desired_programname»`

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## LINUX

### Some useful LINUX commands:

- \* `cd` : change directory
- \* `ls` : list all the files in the current directory
- \* `mkdir` : create a new directory
- \* `mv` : change name of a file
- \* `pwd` : show current directory
- \* `pico` : open a simple text editor

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## LINUX

- \* You can install Ubuntu to a USB flashdisk and use it directly from there.
- \* For details, visit the webpage of Lec. H. Turgut Uyar  
<http://web.itu.edu.tr/~uyar/yazilar/dersler-icin-linux-kurulumu/>

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