BİL106 Nesne Yönelimli Programlama

Dr. Öğr. Üyesi Yavuz CANBAY

Kahramanmaraş Sütçü İmam Üniversitesi

Bilgisayar Mühendisliği Bölümü

Bölüm 2: C++ Temelleri

Temel Program Yapısı

› first.cpp dosyası

```
#include <iostream>
using namespace std;

int main()
    {
    cout << "Every age has a language of its own\n";
    return 0;
    }
```

- › Main fonksiyonu
- › Küme parantezleri
- › Program ifadeleri
- › Önişlemci direktifi
- › Başlık dosyası
- › Using direktifi

Tam Sayı Değişkenleri

› int: -2,147,483,648 ile + 2,147,483,648 arasında değer alır

```
// intvars.cpp
// demonstrates integer variables
#include <iostream>
using namespace std;

int main()
   {
   int var1;                  //define var1
   int var2;                  //define var2

   var1 = 20;                 //assign value to var1
   var2 = var1 + 10;          //assign value to var2
   cout << "var1+10 is ";     //output text
   cout << var2 << endl;      //output value of var2
   return 0;
   }
```

Karakter Değişkeni

```
// charvars.cpp
// demonstrates character variables
#include <iostream>          //for cout, etc.
using namespace std;

int main()
   {
   char charvar1 = 'A';      //define char variable as character
   char charvar2 = '\t';     //define char variable as tab

   cout << charvar1;         //display character
   cout << charvar2;         //display character
   charvar1 = 'B';           //set char variable to char constant
   cout << charvar1;         //display character
   cout << '\n';             //display newline character
   return 0;
   }
```

Kaçış operatörleri

Escape Sequence	*Character*
\ n	Newline
\ r	Return
\ t	Tab
\ \	Backslash
\ '	Single quotation mark
\ "	Double quotation marks
\ xdd	Hexadecimal notation

cin ile Giriş Almak

```
// fahren.cpp
// demonstrates cin, newline
#include <iostream>
using namespace std;

int main()
   {
   int ftemp;  //for temperature in fahrenheit

   cout << "Enter temperature in fahrenheit: ";
   cin >> ftemp;
   int ctemp = (ftemp-32) * 5 / 9;
   cout << "Equivalent in Celsius is: " << ctemp << '\n';
   return 0;
   }
```

Float tipi

```
// circarea.cpp
// demonstrates floating point variables
#include <iostream>                     //for cout, etc.
using namespace std;

int main()
   {
   float rad;                           //variable of type float
   const float PI = 3.14159F;           //type const float

   cout << "Enter radius of circle: ";  //prompt
   cin >> rad;                          //get radius

   float area = PI * rad * rad;         //find area
   cout << "Area is " << area << endl;  //display answer
   return 0;
   }
```

diğerleri

› Double, long double, bool

setw manipülatörü

```
// width1.cpp
// demonstrates need for setw manipulator
#include <iostream>
using namespace std;

int main()
   {
   long pop1=2425785, pop2=47, pop3=9761;

   cout << "LOCATION " << "POP." << endl
        << "Portcity " << pop1 << endl
        << "Hightown " << pop2 << endl
        << "Lowville " << pop3 << endl;
   return 0;
   }
```

Here's the output from this program:

```
LOCATION POP.
Portcity 2425785
Hightown 47
Lowville 9761
```

```
// width2.cpp
// demonstrates setw manipulator
#include <iostream>
#include <iomanip>      // for setw
using namespace std;

int main()
   {
   long pop1=2425785, pop2=47, pop3=9761;

   cout << setw(8) << "LOCATION" << setw(12)
        << "POPULATION" << endl
        << setw(8) << "Portcity" << setw(12) << pop1 << endl
        << setw(8) << "Hightown" << setw(12) << pop2 << endl
        << setw(8) << "Lowville" << setw(12) << pop3 << endl;
   return 0;
   }
```

Here's the output of WIDTH2:

```
LOCATION  POPULATION
Portcity     2425785
Hightown          47
Lowville        9761
```

Değişken Tiplerinin Özeti

Keyword	*Numerical Range* *Low*	*High*	*Digits of Precision*	*Bytes of Memory*
`bool`	false	true	n/a	1
`char`	–128	127	n/a	1
`short`	–32,768	32,767	n/a	2
`int`	–2,147,483,648	2,147,483,647	n/a	4
`long`	–2,147,483,648	2,147,483,647	n/a	4
`float`	3.4×10^{-38}	3.4×10^{38}	7	4
`double`	1.7×10^{-308}	1.7×10^{308}	15	8

Unsigned Veri Tipleri

› Karakter ve tamsayı tiplerindeki işaret kaldırılarak bu tiplerin aralıklarını 0'dan başlayacak şekilde değiştirebilirsiniz

Keyword	*Numerical Range* *Low*	*High*	*Bytes of Memory*
`unsigned char`	0	255	1
`unsigned short`	0	65,535	2
`unsigned int`	0	4,294,967,295	4
`unsigned long`	0	4,294,967,295	4

Aritmetik Operatörler

Operator	Name	Description	Example
+	Addition	Adds together two values	x + y
-	Subtraction	Subtracts one value from another	x - y
*	Multiplication	Multiplies two values	x * y
/	Division	Divides one value from another	x / y
%	Modulus	Returns the division remainder	x % y
++	Increment	Increases the value of a variable by 1	++x
--	Decrement	Decreases the value of a variable by 1	--x

Kütüphane Operatörleri

- C++'da pek çok etkinlik kütüphane fonksiyonları tarafından gerçekleştirilir
- Bu fonksiyonlar pek çok işin yanı sıra, dosya erişimi, matematiksel hesaplamalar, veri dönüşüm işlemlerini yerine getirir

```
// sqrt.cpp
// demonstrates sqrt() library function
#include <iostream>             //for cout, etc.
#include <cmath>                //for sqrt()
using namespace std;

int main()
   {
   double number, answer;       //sqrt() requires type double

   cout << "Enter a number: ";
   cin >> number;               //get the number
   answer = sqrt(number);       //find square root
   cout << "Square root is "
    << answer << endl;          //display it
   return 0;
   }
```

Kütüphane Operatörleri

- include direktifi iki şekilde kullanılabilir
  - #include <cmath>
  - #include ‘’myfile.h’’