MA122 -
Computer
Programming
and
Applications

int

char

escape
sequences

bool

MA122 - Computer Programming and Applications

Indian Institute of Space Science and Technology

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Lecture 4

1 int

2 char

3 escape sequences

4 bool

Initialization

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```cpp
1  // Initialization
2  #include <iostream>
3  #include <cmath> // or math.h
4  int main()
5  {
6      using namespace std;
7      int uncles = 5;          // initialize uncles to 5
8    int aunts = uncles;     // initialize aunts to 5
9    int chairs = aunts + uncles + 4;
10   // initialize chairs to 14
11
12   int owls = 101; // traditional C initialization
13   int wrens(432); // alternative C++ syntax
14
15   int hamburgers = {24}; // C++98
16   //int emus{7};     //C++11
17   return 0;}
```

Unsigned

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```cpp
// listing3pt2.cpp -- exceeding some integer limits
#include <iostream>
#define ZERO 0 // makes ZERO symbol for 0 value
#include <climits> // defines INT_MAX as largest int
int main()
{
  using namespace std;
  short sam = SHRT_MAX; // initialize a variable to
      max value

  unsigned short sue = sam;// okay if variable sam
      already defined

  cout << "Sam has " << sam << " dollars and Sue has "
      <<sue;

  cout << " dollars deposited." << endl
    << "Add $1 to each account." << endl << "Now ";
```

```
1  sam=sam+1;
2  sue = sue + 1;
3  cout << "Sam has " << sam << " dollars and Sue has "<<
       sue;
4  cout << " dollars deposited.\nPoor Sam!" << endl;
5  sam = ZERO;
6  sue = ZERO;
7  cout << "Sam has " << sam << " dollars and Sue has "<<
       sue;
8  cout << "Take $1 from each account." << endl << "Now "
       ;
9  sam = sam - 1;
10 sue = sue - 1;
11 cout << "Sam has " << sam << " dollars and Sue has "<<
       sue;
12 cout << " dollars deposited." << endl << "Lucky Sue!"
       << endl;
13 return 0;}
```

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The char type: Characters and Small Integers

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```cpp
// chartype.cpp -- the char type
#include <iostream>
int main( )
{
  using namespace std;

  char ch; // declare a char variable
  cout << "Enter a character: " << endl;

  cin >> ch;
  cout << "Hola! ";

  cout << "Thank you for the " << ch << " character."
      << endl;

  return 0;}
```

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```cpp
1  #include <iostream>
2  int main()
3  {
4    using namespace std;
5    char ch='M'; //assign ASCII code for M to ch
6    int i =ch; //store same code
7
8    cout << "The ASCII code for " << ch << " is " << i
         << endl;
9    cout << "Add one to the character code:" <<endl;
10
11   ch=ch+1;
12   i=ch;
13   ch= char(79);
14   cout << "The ASCII code for " << ch << " is " << i
         << endl;
15
16   return 0; }
```

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Table 3.2   **C++ Escape Sequence Codes**

Character Name	ASCII Symbol	C++ Code	ASCII Decimal Code	ASCII Hex Code
Newline	NL (LF)	\n	10	0xA
Horizontal tab	HT	\t	9	0x9
Vertical tab	VT	\v	11	0xB
Backspace	BS	\b	8	0x8
Carriage return	CR	\r	13	0xD
Alert	BEL	\a	7	0x7
Backslash	\	\\	92	0x5C
Question mark	?	\?	63	0x3F
Single quote	'	\'	39	0x27
Double quote	"	\"	34	0x22

escape sequences

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```cpp
// bondini.cpp -- using escape sequences
#include <iostream>
int main()
{

  using namespace std;

  cout << "\aOperation \"HyperHype\" is now activated
      !\n";
  cout << "Enter your agent code:_____\b\b\b\b\b\b\
      b\b";

  long code;
  cin >> code;

  cout << "\aYou entered " << code << "...\n";
  cout << "\aCode verified! Proceed with Plan Z3!\n";
  return 0; }
```

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The bool type

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```cpp
#include <iostream>
int main()
{
    bool a = true;

    std::cout << "\nits value is "
    << a << std::endl;
    a  = false;
    std::cout<<"\nNow its value is " << a << std::endl
        <<std::endl;

    bool b1 = true; // copy initialization
    bool b2(false); // direct initialization
    bool b3;
    b3 = false; // assignment

    std::cout<<b1<<b2<<b3<<"\n";
    return 0;}
```