Lab 03:
Output/ Escape Sequences

Objective(s): Learn about input and output in C++.

CLOs: CL01, CLO4

cout<<

Statements in C++ always end with semi-colon. Statements are always executed in the order they appear. The cout corresponds to a standard output stream. It is used to display the output on the screen. The symbol "<<" refers to an *insertion* operator. Its function is to direct the string constants to cout which displays it onto the screen.

Example:

Write your first C++ Program.

```
// A simple C++ program
#include <iostream>          //Header file
using namespace std;
int main()                   // Main function
{
cout << "Programming is great fun!";
return 0;
}
```

OUTPUT

```
Programming is great fun!
```

In the sample program you encountered several sets of special characters. Table below provides a short summary of how they were used.

Special Characters

Character	Name	Description
//	Double slash	Marks the beginning of a comment.
#	Pound sign	Marks the beginning of a preprocessor directive.
< >	Opening and closing brackets	Encloses a filename when used with the #include directive.
( )	Opening and closing parentheses	Used in naming a function, as in int main()
{ }	Opening and closing braces	Encloses a group of statements, such as the contents of a function.

" "	Opening and closing quotation marks	Encloses a string of characters, such as a message that is to be printed on the screen.
;	Semicolon	Marks the end of a complete programming statement

Escape Sequences:

Escape sequences are special characters used in control string to modify the format of an output. These specific characters are translated into another character or a sequence of characters that may be difficult to represent directly. For example, you want to put a line break in the output of a C++ statement then you will use "\n" character which is an escape sequence itself.

An escape sequence consists of two or more characters. For all sequences, the first character will be "\" i.e. backslash. The other characters determine the interpretation of escape sequence. For example, "n" of "\n" tells the cursor to move on the next line.

Common Escape Sequences:

Escape Sequence	Name	Description
\n	Newline	Causes the cursor to go to the next line for subsequent printing.
\t	Horizontal tab	Causes the cursor to skip over to the next tab stop.
\a	Alarm	Causes the computer to beep.
\b	Backspace	Causes the cursor to back up, or move left one position.
\r	Return	Causes the cursor to go to the beginning of the current line, not the next line.
\\	Backslash	Causes a backslash to be printed.
\'	Single quote	Causes a single quotation mark to be printed.
\"	Double quote	Causes a double quotation mark to be printed

Examples:

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

int main() {

  cout<< "Hey, \"How are you\?\"" ;

  getch();

  return 0;
```

}

Output

Hey, “How are you?”

Lab Tasks:

Task 1:

Write a program that displays the following pieces of information, each on a separate line:
Your name
Your address, with city, province and country
Your telephone number
Your university name
Your program
Your Semester
Use only a single cout statement to display all of this information.

Task 2:

Write a program to show the following output?

```
1  4  7
 2  5  8
  3  6  9
```

Task 03:

Write a program to display

```
    *
 *    *
*       *
 *    *
    *
```