**Computer Programming Lab**

**Lab Journal - 5**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enrollment #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objective:**

1) Understanding Looping Statements

2) Practicing for repetition structures

3) Practicing nested for repetition structures

**Tools Required:**

1. PC with Windows 7 Professional or onwards
2. Visual Studio 2013 onwards

**A comparison among the three types of loops for you:**

|  |
| --- |
| **Same code written with different loops** |
| **For:**  **int j, square;**  **for (j = 0; j < 15; j++)**  **{**  **square = j \* j;**  **cout << " square is : " <<square;**  **cout << endl;**  **}** |
| **While:**  **int j, square;**  **j = 0;**  **while (j < 15)**  **{**  **square = j \* j;**  **cout << " square is : " << square;**  **cout << endl;**  **j++;**  **}** |
| **Do-While:**  **int j, square;**  **j = 0;**  **do**  **{**  **square = j \* j;**  **cout << " square is : " << square;**  **cout << endl;**  **j++;**  **} while (j < 15);** |

Attempt the following tasks:

**Task 1 : Give output of the following pieces of codes :**

|  |  |  |
| --- | --- | --- |
| 1. | #include<iostream>  #include<conio.h>  using namespace std;  void main()  {  int x = 2, y = 3, result = 1;  for(int i = 0; i < y; i++)  {  result \*= x;  }  cout << result << endl;  getch();  } | **Output:** |
| 2. | //This program is written just to show you that for loop can be written without initialization and increment statement. You can see both these statements are provided manually.  You will not use for loop like this. This is just to show you that this thing also exists.  #include<iostream>  #include<conio.h>  using namespace std;  void main()  {  int num = 1;  for(; num <= 10;)  {  cout << num << " ";  num++;  }  getch();  } | **Output:** |
| 3. | #include<iostream>  #include<conio.h>  using namespace std;  void main()  {  int x=4, y=3;  for(int i=1;i<=y;i++)  {  for(int j=1;j<=x;j++)  cout<<"\*";  cout<<endl;  }  getch();  } | **Output:** |
| 4. | #include<iostream>  #include<conio.h>  using namespace std;  void main()  {  for(int i=1;i<=2;i++)  {  for(int j=1;j<=2;j++)  {  for(int k=1;k<=3;k++)  cout<<"\*";  cout<<endl;  }  cout<<endl;  }  getch();  } | **Output:** |
| 5. | Convert the following do-while loop to a for loop  int cube = 1;  int numb = 1;  do  {  cube = numb \* numb \* numb;  cout<< “ Number is: “ <<numb;  cout<< “ Cube is: “<<cube;  numb++;  } while( numb < 30); | **Code through for loop:** |
| 6. | int a=97;  cout<< (char)a; | **Output:** |

**Task 2:** Writea C++ program using for loop, that takes a number from the user and displays its table till 10 multiples. Output should be in the form 🡪 2 x 1 = 2

**Task 3:**

Write a program using for loop to extract even number from the range of integers given from the keyboard and then print them on the screen. Your program output should be like:

Input starting integer: 6

Input ending integer: 12

Even numbers are: 6 8 10 12

**Task 4:**

Write a C++ program using nested for loop to print the following pyramid.

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

**Task 5:** Writea C++ program using nested for loop to print the following pyramid.

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***