

COMSATS University
Computer Science Department

C++ Programming Lab manual

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Lab 1: Use the Visual studio environment and debugging the Code.

Lab Objectives:

- Learn the student, how to open the Microsoft visual c++ 6.0 , and use it to write and execute a simple program that print a simple statement.
- Find and correct the errors.
- Applying the escape characters like \n, \t, \r, \a.
- Using the single line and multiline comments.

Lab assignment-1

- Determine the overall method of using **Visual studio 2010** express edition.

Lab assignment-2

- Starting with simple console message.

```
#include <iostream>
using namespace std;
void main()
{
cout << "Welcome to the wonderful world of C++!!!\n";
}
```

Lab assignment-3

- Use of escape sequence and c++ Manipulators

```
#include <iostream>
```

```
using namespace std;

void main()
{
    cout << "Welcome to the wonderful world of C++!!!\n";
    cout << "Lab1 \t";
    cout<<"\n END\t PROGRAM\t BYE";
    cout<<"Welcome in yarmouk univerty\rHellooo";
}
```

Lab assignment-4

- Use of Single line and multiline comments with any program example.

```
#include <iostream> // header file
using namespace std;
void main()          // built-in-function
{
    cout << "Welcome to the wonderful world of C++!!!\n"; /* simple console
    cout << "Lab1 \t";                                     messages */
    cout<<"\n END\t PROGRAM\t BYE";
    cout<<"Welcome in yarmouk univerty\rHellooo";
}
```

Lab 2: Arithmetic, relational, inc/dec operators

Lab Objectives:

- Teach the students how to use the arithmetic operations in mathematical expressions, and use it to write and execute a simple program.
- Teach the students the arithmetic operation precedence.

Lab assignment-1

- Make a program which will read an integer variable count from user and then write each of the following statements in cout and note the output.

1. `++count,`
2. `-- count,`
3. `count ++,`
4. `count - -;`

Source Code:

```
#include <iostream>
using namespace std;
int main()
{
    int count ;
    cout<<"Enter the variable"<<endl;
    cin>>count;
    cout << "count=" << count << endl;
    cout << "count=" << ++count << endl;
    cout << "count=" << count << endl;
```

```
cout << "count=" << count++ << endl;
cout << "count=" << count << endl;
return 0;
}
```

Lab assignment-2

- Write a program that reads two integers and output the result of following operation:

- a. Addition
- b. Subtraction
- c. Division
- d. Multiplication
- e. Square

Lab assignment-3

- Write a program that input radius of circle from the user and find out area of circle.

Source Code:

```
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;
}
```

Lab assignment-4

- Write a program that reads a four digit number from user, then the program separates digits of the number e.g 4567 to be displayed as:

4

5

6

7

Lab assignment-5

- Write a program that defines variables m, n, p, and amount, as integer Solve the following expression on notebook by supposing some values of each variable, then execute your program for the same values and see the difference if any.

$$(m + n) / (p + \text{amount})$$

Lab assignment-6

- Write a program in C++ which would swap the values of two variables without using the third variable.

Lab 3: Decision Statements (if, else if and nested if etc...)

Lab Objectives:

- Learn the student, how to use if/else selection statements, and use it to write and execute a simple program.
- Applying the arithmetic operations with if/else selection statements, and use it to write and execute a program.

Lab assignment-1

- Read an integer number of a fixed length (3 digits) from the standard input then print its digits separated by spaces. For example if 364 is the input then the output should be 3 6 4 or 4 6 3

Hint: Use division and modulus operator.

Source Code:

```
#include<iostream>
using namespace std;
void main( )
{
int x;
cin>>x;
if(x>=100 && x<=999)
{
cout<<x%10<<" ";
```



```
x=x/10;
cout<<x%10<<" ";
x=x/10;
cout<<x%10<<" ";
x=x/10;
}
}
```

Lab assignment-2

- Write a program to read three integer numbers then find and print the largest one among these numbers.

Source Code:

```
#include<iostream>
using namespace std;
void main( )
{
int x;
cin>>x;
int y;
cin>>y;
int z;
cin>>z;
if (max<x)
{max=x;    cout<<"The Max Value is:"<<max<<endl;}
else if(max<y)
{max=y;    cout<<"The Max Value is:"<<max<<endl;}
else if (max<z)
{max=z;    cout<<"The Max Value is:"<<max<<endl; }
else
```

```
{cout<<"Good Luck"<<endl;} }
```

Lab assignment-3

- Write a program that takes the marks from the user and tells the grade corresponding to the marks. The marks and corresponding grades are mentioned below:

Marks	Grades
Greater than 90	A
Greater than or equal to 86 and less than 90	A-
Greater than or equal to 81 and less than 86	B+
Greater than or equal to 77 and less than 81	B
Greater than or equal to 72 and less than 77	B-
Greater than or equal to 68 and less than 72	C+
Greater than or equal to 63 and less than 68	C
Greater than or equal to 58 and less than 63	C-
Greater than or equal to 54 and less than 58	D+
Greater than or equal to 50 and less than 54	D
Below 50	F

Lab assignment-4

- Write a program which reads salaries of 10 employees of an organization. The program will tell, what the maximum salary is and what the minimum salary is.

Lab assignment-5

- Write a program that input three numbers from the user and find out whether these numbers are equal or different.

Source Code:

```
#include<iostream.h>

Void main()
{
int a,b,c;
cout<<"enter three integers"<<endl;
cin>>a>>b>>c;
if(a==b)
{ if(a==c)
{cout<<"numbers are equal";}
else
{cout<<"numbers are different";}
}
else
{ cout<<"numbers are different";
}
}
```

Lab assignment-6

Our world composed of different things. One thing is that the temperature of the day. A day consists of low temperature and high temperature. Low temperature represents “cool day” and high temperature represents “hot day”. Write a program that inputs temperature and display a message. If temperature is greater than 35, it display output “hot day”. If temperature is between 25 and 35, it display “pleasant day” if temperature is less than 25, it display “cool day”.

Lab 4: Switch multiple selection statement

Lab Objective:

- Teach student the structure of the switch statement.

Lab assignment-1

- Implement the calculator using switch statement. The program should ask the user to input two operands and an operation, your program should print the result of performing the required operation on the input operands as the following output suggests:

Enter operand 1: 5
Enter operand 2: 10
Enter operation: /
The result of 5/10 is 0.5

Source Code:

```
#include<iostream>

using namespace std;

void main()
{
    int a;
    cout<<"Enter operand 1: ";
    cin>>a;
    int b;
    cout<<"Enter operand 2: ";
    cin>>b;
    char op;
    cout<<"Enter operation:";
    cin>>op;
```

```

switch(op)
{
case '+':
    cout<<"The result of "<<a<<op<<b<<" is "<<a+b<<endl;
case '-':
    cout<<"The result of "<<a<<op<<b<<" is "<<a-b<<endl;
case '*':
    cout<<"The result of "<<a<<op<<b<<" is "<<a*b<<endl;
case '/':
    cout<<"The result of "<<a<<op<<b<<" is
"<<static_cast<float>(a)/b<<endl;
default:
    cout<<"Incorrect operation was entered..."<<endl;

}
    
```

Lab assignment-2

- Write a program that input a character from the user that find out whether it is vowel or consonant number.

Lab assignment-3

Write a Program that input two numbers and radius of circle from the user. You give the choice to the user that when user entered # symbol, then it prints Area and Circumference of circle. If user entered * symbol, then it displays the Result of Addition and Division of two numbers.

You do perform this task by using “Switch Multiple Selection Statement”

```

#include<iostream>
using namespace std;
void main()
{
    float a, b, x, y, z, pi = 3.14, r;
    char c;
    cout<<"Enter you choice"<<endl;
    cout<<"# for area and circumfrance of the circle"<<endl<<"* for additpn and
    di v i o s i o n"<<endl;
    ci n>>c;
    
```

```
switch(c)
{
case '#':
cout<<"Enter the radius\t"<<endl;
cin>>r;
x=(3.14*r*r);
cout<<"This is area of circle\t"<<x<<endl;
y=(2*pi*r);
cout<<"This is circumference of the circle\t"<<y<<endl;
break;
case '*':
cout<<"Enter the first value\t"<<endl;
cin>>a;
cout<<"Enter the second value\t"<<endl;
cin>>b;
z=a+b;
cout<<"Result of addition\t"<<z<<endl;
z=a/b;
cout<<"Result of division\t"<<z<<endl;
break;
default:
cout<<"Invalid no"<<endl; }
getchar();
getchar();
}
```

Lab 5: Loops (for, while, do and nested loops)

Lab Objective:

- explain the basics of while and for loops and while loops
- apply the syntaxes of loop structures
- design programs using loop structures
- solve (hard) problems of repetitive nature using loop structures

Lab assignment-1

- Write a Program that input a number for table from the user. And also input length for table. And shows the table according to its length.

You do perform this task by using "For Loop"

For example, if number=2 and limit=3

2*1=1

2*2=4

2*3=6

```
#include<iostream>
using namespace std;
void main()
{int t,n,c;
cout<<"enter the number of table\t(which you want)"<<endl;
cin>>t;
cout<<"enter the length of table\t(where you want to go)"<<endl;
cin>>n;
for(c=1; c<=n; c++)
{cout<<t<<"*"<<c<<"="<<t*c<<endl; }

getchar();
getchar();
}
```

Lab assignment-2

Write a Program that display the following output on the console **"for Loop"**:-

0 2 4 6 8 100

```
#include<iostream>
using namespace std;
void main()
{
    int a,b;

    cout<<"Enter the no."<<endl;
    cin>>b;
    for(a=0; a<b; a+=2)
        cout<<a<<endl;
    getch();
    getch();
}
```

Lab assignment-3

- Perform while and do while loop with any program example.

Lab assignment-4

Write a Program that display the following output on the console **"Nested Loop"**:-

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

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

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



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

Program.

```
#include<iostream>
using namespace std;
void main()
{
    for(int m=1; m<5; m++)
    {for(int n=1; n<5; n++)
    {if(m==1 || n==1 || m==4 || n==4)
    {cout<<"*"; }
    else
    {cout<<" "; }
    }
    cout<<endl; }
    getchar();
    getchar();
}
```

Program.

```
#include<iostream>
using namespace std;
void main()
{
    for(int x=1; x<5; x++)
    {for(int y=1; y<=x; y++)
    {cout<<"*"; }
    cout<<endl; }
    getchar();
    getchar();
}
```

Lab 6: Functions

Lab Objectives:

- Simple Function Concepts
- Passing parameters to function
- Return value from functions
- Function Overloading
- Math Built-in-Functions

Lab assignment-1

Write a Program that Print three lines of stars using **for loop** in the user defined function named as printline(). You also call printline() function from the main() function according to your need. And also shows size of Data types using simple **cout object** in the main function.

Program.

```
#include<iostream>
using namespace std;
void printline()
{
    for(int j=1; j<50; j++)
    {cout<<"*"; }
    cout<<endl; }

void main()
{
    printline();
    cout<<"          datatype          size in bits          "<<endl;
    printline();
    cout<<"          int          4          "<<endl;
    cout<<"          double          8          "<<endl;
    cout<<"          char          1          "<<endl;
    printline();
    getchar();
    getchar();
}
```

Lab assignment-2

Write a Program that inputs three numbers from the user in such a way that one number **pass by value**, second number **pass by reference** and third number **pass as a constant**. And after this all, display the final numbers.

Program.

```
#include<iostream>
using namespace std;
void bank(int x, int &y, char z)
{cout<<x<<endl;
cout<<y<<endl;
cout<<z<<endl; }
void main()
{int a, b;
char c;
cout<<"Enter two numbers: "<<endl;
cout<<"\nENTER 1st number: "<<endl;
cin>>a;
cout<<"ENTER 2nd number: "<<endl;
cin>>b;
cout<<endl;
bank(a, b, 'g');
getchar();
getchar();
}
```

Lab assignment-3

Write a program that input a number from the user for table and this number **pass by reference** as function argument. And show the table after the function called.

Program.

```
#include<iostream>
using namespace std;
void table(int&x)
{
    int y;
    for(y=1; y<=10; y++)
    {cout<<x<<"*"<<y<<"="<<x*y<<endl; }}
void main()
{int a;
cout<<"Enter any number for table: "<<endl;    // which table you want
cin>>a;
table(a);
getchar();
getchar();
}
```

Lab assignment-4

Write a program that perform "**Function Overloading**" with any program example.

Program.

```
#include<iostream>
using namespace std;
void display()
{cout<<"Always prayer for others!"<<endl; }
void display(int n)
{cout<<"The value of n"<<endl<<n<<endl; }
void display(double c)
{cout<<"The value of c"<<endl<<c<<endl; }
void display(char s, int m)
{cout<<"The value of s and m\\t"<<s<<m<<endl; }
void main()
{
display();
display(50);
display(20.5);
display(' ', 10);
getchar();
getchar();
}
```

Lab assignment-5

Write a program that input marks of student and pass the marks **as a variable** and also **Return** grade of student according to following criteria:

<u>Marks</u>	<u>Grade</u>
90-100	Return A
80-90	Return B
70-80	Return C

Lab assignment-6

Write a Program that input radius of Circle and this radius "**pass by value**" as Function Arguments and display **Area of Circle**.

Lab assignment-7

Perform all **Built-in-functions of Math** with any program example.

```
#include<iostream>
#include<math.h>
using namespace std;
void main()
{
    int a;
    float b,c,d,e,f,g,h,i,j,k,l;
    cout<<"Result of all build-in-function"<<endl;
    cout<<endl;

    cout<<"Enter the negative integer number for abs()"<<endl;
    cin>>a;
    cout<<"Result of absolute funtion\t"<<abs(a)<<endl;

    cout<<"enter the second value for fabs()"<<endl;
    cin>>b;
    cout<<"Result of factional absolute funtion\t"<<fabs(b)<<endl;

    cout<<"enter the 3rd value for ceil()"<<endl;
    cin>>c;
    cout<<"Result of ceil function\t"<<ceil(c)<<endl;

    cout<<"enter the 4th value for floor()"<<endl;
    cin>>d;
    cout<<"Result of floor function\t"<<floor(d)<<endl;

    cout<<"enter the 5th value for sine()"<<endl;
    cin>>e;
    cout<<"Result of sine function\t"<<sin(e)<<endl;

    cout<<"enter the 6th value for cose()"<<endl;
    cin>>f;
    cout<<"Result of cose function\t"<<cos(f)<<endl;

    cout<<"enter the 7th value for tan()"<<endl;
    cin>>g;
    cout<<"Result of tan function\t"<<tan(g)<<endl;

    cout<<"enter the 8th value for log()"<<endl;
    cin>>h;
    cout<<"Result of log function\t"<<log(h)<<endl;

    cout<<"enter the 9th value for log10()"<<endl;
    cin>>i;
    cout<<"Result of log10 function\t"<<log(i)<<endl;
    cout<<"enter the 10th value for squerroot()"<<endl;
    cin>>j;
    cout<<"Result of squire root function\t"<<sqrt(j)<<endl;
    cout<<"enter the 11th value for power()"<<endl;
    cin>>k;
    cin>>l;
    cout<<"Result of power function\t"<<pow(k,l)<<endl;
    getchar();
    getchar();}
```

Lab 7: Arrays

Lab Objectives:

- Array Concepts(one,two and multi-D array) Concepts
- Searching in the Array
- Passing array to Functions

Lab assignment-1

Write a program that input 10 numbers from the user in the Array and find out **Sum and Average** of the Numbers using One Dimensional Array.

Program.

```
#include<iostream>
using namespace std;
void main()
{
    double s[10];
    cout<<"Enter the 10 Numbers:"<<endl;
    for(int num=0; num<10; num++)
    {cin>>s[num];}
    double sum, avg;
    sum=0;
    for(int num=0; num<10; num++)
    {sum=sum+s[num];}
    avg=sum/10;
    cout<<"Total sum is : "<<sum<<endl;
    cout<<"Average is : "<<avg<<endl;
    getchar();
    getchar();
}
```

Lab assignment-2

Write a Program that find out the Sales for 4 Districts in 3 Months using "**Two Dimensional Array Concepts**".

Program.

```
#include<iostream>
using namespace std;
const int district=4;
const int month=3;
```

```
void main()
{double s[4][3];
for(int d=0; d<district; d++)
{for(int m=0; m<month; m++)
{cout<<"Enter The Sales for District "<<d+1;
cout<<"and Month "<<m+1<<": ";
cin>>s[d][m]; }}
cout<<"\n\n";
cout<<"          Months          "<<endl;
cout<<"-----"<<endl;
cout<<"          1          2          3          "<<endl;
cout<<"-----"<<endl;
for(int d=0; d<district; d++)
{for(int m=0; m<month; m++)
{cout<<"\t"<<s[d][m]<<"\t"; }
cout<<endl; }
getchar();
getchar();
}
```

Lab assignment-3

Write a Program that input 500 values from the user in the Array and find out the **Minimum value** using the concepts of Searching.

Program.

```
#include<iostream>
using namespace std;
const int length=5;
void main()
{
    int s[length], m;
    cout<<"Enter the element"<<endl;
    for(int p=0; p<length; p++)
    {cin>>s[p]; }
    m=s[0];
    for(int p=0; p<length; p++)
    {
        if(m>s[p])
        {m=s[p]; }
    }
    cout<<"Minimum value is"<<m<<endl;
    getchar();
    getchar();
}
```

Lab assignment-4

Write a program that input values from the user and find out reverse order of elements of these values using **Paasing array to Function** concepts

Lab assignment-5

Perform **Linear Search** with any program example.



Lab 8: c strings

Lab Objectives:

- String input methods
- Array of Strings
- String Built-in-Functions

Lab assignment-1

Write a Program that perform String Declaration Methods [cin] and [cin.get()].

Program.

```
#include<iostream>
using namespace std;
void main()
{
    char name[20], ci ty[20];
    int age;
    cout<<"Enter the name"<<endl;
    ci n. get(name, 20);
    cout<<"Enter the ci ty"<<endl;
    ci n>>ci ty;
    cout<<"Enter the age"<<endl;
    ci n>>age;
    cout<<"\n your name is"    <<name<<endl;
    cout<<"\n your ci ty is"   <<ci ty<<endl;
    cout<<"\n your age is"     <<age<<endl;

    getchar();
    getchar();}
```

Lab assignment-2

Write a program that inputs five cities of Pakistan from the user. And display these cities using Array of Strings.

Program.

```
#include<iostream>
using namespace std;
void main()
{
    int a;
```

```
char ci ty[20][20];
for(a=0; a<5; a++)
{
    cout<<"\nEnter the name of ci ty"<<endl;
    ci n>>ci ty[a];
}
cout<<"\nname of ci ties are"<<endl;
for(a=0; a<5; a++)

    cout<<"\n"<<ci ty[a]<<endl;

    getchar();
    getchar();
}
```

Lab assignment-3

Perform **built-in-Functions of string** with any program example.

Program.

strupr(s);

```
#include<iostream>
#include<string.h>
using namespace std;
void main()
{
    char s[]="ghauri center.";
    cout<<"\nBefore the funtion...\n"<<endl<<s<<endl;
    strupr(s);
    cout<<"\n\nAfter the funtion...\n"<<endl<<s<<endl;

    getchar();
    getchar();
}
```

Program.

strlwr(s);

```
#include<iostream>
#include<string.h>
using namespace std;
void main()
{
    char s[]="GHAURI CENTER.";
```

```
cout<<"\nBefore the funtion...\n"<<endl<<s<<endl ;
strlwr(s);
cout<<"\n\nAfter the funtion...\n"<<endl<<s<<endl ;

getchar();
getchar();
}
```

Program.

strrev(s);

```
#include<iostream>
#include<string.h>
using namespace std;
void main()
{
    char s[]="GHAURI CENTER.";
    cout<<"\nBefore the funtion...\n"<<endl<<s<<endl ;
    strrev(s);
    cout<<"\n\nAfter the funtion...\n"<<endl<<s<<endl ;

    getchar();
    getchar();
}
```

Lab 9: Pointers

Lab Objectives:

- Concept of memory addresses and simple pointer variable
- Dereference operator
- Pointer to void
- Arrays and pointers
- Functions and pointers

Lab assignment-1

Write a Program that explains simple Pointer Variable.

Program.

```
#include<iostream>
using namespace std;
void main()
{
    int m;
    int n;
    int *z;
    z=&m;
    cout<<"Adress of m"<<endl <<z<<endl ;
    z=&n;
    cout<<"Adress of n"<<endl <<z<<endl ;
    getchar();
    getchar();
}
```

Lab assignment-2

What do know about **Dereference(Indirection) Operator**. Explains with any program example.

Program.

```
#include<iostream>
using namespace std;
void main()

{
    int m=10;
    int n=20;
    int *z;
    z=&m;
    cout<<"Adress of m"<<endl <<z<<endl ;    //pointer variable
    cout<<"Value of m"<<endl <<*z<<endl ;    //indirectional operator / dereference
operator
    z=&n;
    cout<<"Adress of n"<<endl <<z<<endl ;
    cout<<"Value of n"<<endl <<*z<<endl ;
    getchar();
    getchar();
}
```

Lab assignment-3

Mudassar has a good student of Software Engineering. Many times he think about **void pointer**. Design a broad Logic about Mudassar perception with any Program example.

Program.

```
#include<iostream>
using namespace std;
void main()

{
    int j=10;
    float b=05.05;
    char c='g';
    void *z;
    z=&j;
    cout<<"Adress of j"<<endl <<z<<endl ;
    z=&b;
    cout<<"Adress of b"<<endl <<z<<endl ;
    z=&c;
    cout<<"Adress of c"<<endl <<z<<endl ;

    getchar();
    getchar();
}
```

Lab assignment-4

Write a Program that perform **Addition** of two integer variables using concepts of **Pointers and Memory Addresses**.

```
#include<iostream>
using namespace std;
void main()
{
    int a, b, *x, *y, result;
    cout<<"\nEnter any two digits for adding\n"<<endl;
    x=&a;
    cout<<"Enter first digits=\n"<<endl;
    cin>>a;
    y=&b;
    cout<<"\nEnter second digits="<<endl;
    cin>>b;
    result=*x+*y;
    cout<<"\nThe sum is="<<result<<endl;
    getch();
    getch();
}
```

Lab assignment-5

Write a Program that input radius of Circle and this radius "pass by value" as Function Arguments and display **Area of Circle** using pointers.

Lab 10: Structures

Lab Objectives:

- Simple structure defining and declaring
- Array as a member and structure variable
- Nested structures

Lab assignment-1

Create a structure of type `date` that contains three members: the month, the day of the month, and the year, all of type `int`. Have the user enter a date in the format 12/31/2001, store it in a variable of type `struct date`, then retrieve the values from the variable and print them out in the same format.

Lab assignment-2

write a Program that declares a structure to store the distance covered by an player along with minutes and seconds to cover the distance. The program should input the record of two players and display the record of winner.

Lab assignment-3

write a Program that declares a structure to store ten values in the Array. It defines a structure variable, input the values and display Maximum value.

Lab assignment-4

Write a Program that uses two structures `Result` and `Record`. The result structure stores marks and grade, record structure stores roll no and Result type. The program declares a variable of type `Record`, inputs roll no, marks and grade. It finally displays these values on the screen.

Lab 11: Classes

Lab Objectives:

- Simple class defining and declaring
- Creating Objects
- Access specifies (private, public and protected)

Lab assignment-1

Write a Program that declares a class with one integer Data Member and two Member Functions setdata() and showdata(). And display results.

Lab assignment-2

Write a program to declare a class Distance with two data members feet and inches and member functions setdist() to set constant values, getdist() to input from user and showdist() to show the distance values.

```
#include <iostream>

using namespace std;

////////////////////////////////////

class Distance          //English Distance class
{
private:
int feet;
```



```
float inches;

public:

void setdist(int ft, float in) //set Distance to args
{ feet = ft; inches = in; }

void getdist()           //get length from user
{
cout << "\nEnter feet: "; cin >> feet;
cout << "Enter inches: "; cin >> inches;
}

void showdist()          //display distance
{ cout << feet << "\'" << inches << "\'"; }
};

////////////////////////////////////

int main()
{
Distance dist1, dist2;    //define two lengths
dist1.setdist(11, 6.25);  //set dist1
dist2.getdist();          //get dist2 from user
//display lengths
cout << "\ndist1 = "; dist1.showdist();
cout << "\ndist2 = "; dist2.showdist();
cout << endl;
return 0;
}
```

Lab assignment-3

Write a program to declare a class car that includes data members part no.model number and cost of the car, also member functions setpart() to set constant values and showpart() to show that values.

```
#include <iostream>
using namespace std;
////////////////////////////////////
class part          //define class
{
private:
int modelnumber; //ID number of widget
int partnumber;  //ID number of widget part
float cost;      //cost of part
public:
void setpart(int mn, int pn, float c) //set data
{ modelnumber = mn;
  partnumber = pn;
  cost = c;
}
void showpart()          //display data
{
cout << "Model "  << modelnumber;
cout << ", part " << partnumber;
cout << ", costs $" << cost << endl;
}
};
////////////////////////////////////
```

```
int main()
{
    part part1;           //define object
    // of class part
    part1.setpart(6244, 373, 217.55F); //call member function
    part1.showpart();       //call member function
    return 0;
}
```



Lab 12: Streams and Files

Lab Objectives:

- Write data to file
- Read data from file

Lab assignment-1

Write a program that write data to a file with any program example.

```
#include<iostream>
#include<fstream>
using namespace std;
void main()
{
char ch = 'x';
int j=77;
double d =6.02;
char str1[]= "Pakistan";
char str2[]= "Islamabad";
ofstream outfile("sani.doc");
outfile<< ch<<endl << j <<endl<< d <<endl<< str1 <<endl<< str2<<endl;
//cout<< ch<<endl << j <<endl<< d <<endl<< str1 <<endl<< str2<<endl;
system("pause");}
```

Lab assignment-2

Write a program that read data from a file with any program example.

```
#include<iostream>
#include<fstream>
using namespace std;
void main()
{
char ch;
int j;
double d;
char str1[80];
char str2[80];
ifstream infile ("maaz.txt");
infile>> ch >> j >> d>>str1>>str2;
cout<< ch<<endl<<j <<endl<< d<<endl<<str1<<endl<<str2<<endl;
system("pause");}
```