Institute of Engineering & Management
Department of Computer Science & Engineering
Programming Practices Using C++ Lab for 3rd year 5th semester 2018
Code: CS593

Date: 27/08/18

WEEK-1

Assignment-1

Problem Statement: Write a program in C++ to swap two numbers using reference variables.

Source code:

```
#include <iostream>
using namespace std;
int main()
{
    int m,n,temp;
    cout<<"Enter the two numbers :";
    cin>>m>>n;
    int& a=m;
    int& b=n;
    temp=b;
    b=a;
    a=temp;
    cout<<"m="<<m<<"n="<<n;
    return 0;
}
```

Screen-Shot:

```
Enter the two numbers: 2 3
m=3
n=2
```

Assignment-2

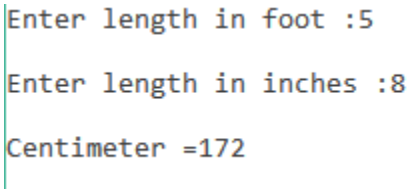
Problem Statement: Write a program that takes length as input in feet and inches. The program should define a function to convert the lengths in centimeters and display it on the screen. The values should be passed to the functions as references. Assume that the given lengths in feet and inches are integers.

Source code:

```
#include<iostream>
using namespace std;
double calc(int& c,int& d)
{
    int centi,ft,inc;
    double conv;
    ft=c;
    inc=d;
    conv=(ft*12)+inc;
    centi=2.54*conv;
    return centi;
}
```

```
int main()
{
    int ft,inc;
    double value;
    cout<<"Enter length in foot :";
    cin>>ft;
    cout<<"\nEnter length in inches :";
    cin>>inc;
    value=calc(ft,inc);
    cout<<"\nCentimeter ="<<value;
}
```

Screen-Shot:



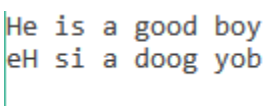
Assignment-3

Problem Statement: Take an input string with arbitrary number of spaces between the words. Construct a new string with every word reversed and with only a single space in between the words.
E.g. I am a boy (i/p).

Source code:

```
#include<iostream>
#include<sstream>
#include<string>
#include<algorithm>
using namespace std;
int main()
{
    string str;
    getline(cin,str);
    stringstream ss(str);
    while(ss>>str)
    {
          reverse(str.begin(), str.end());
          cout<<str<<" ";
    }
}
```

Screen-Shot:



Assignment-4

Problem Statement: Write the definition of a class called Rectangle that has floating point data members length and width.

a. Void setlength(float) to set the length data member.
b. Void setwidth(float) to set the width to set the width data member.
c. Float perimeter() to calculate and return the perimeter of the rectangle .
d. Float area() to calculate and return the area of the rectangle.
e. Void show() to display the length and width of the rectangle.
f. Int sameArea(Rectangle) that has one parameter of type Rectangle. sameArea returns 1 if two Rectangles have the same area , and returns 0 if they don't.
g. In the main function to create two rectangle objects. Set the length and width of the first rectangle to 6 and 3.5 and the second rectangle as 9 and 10.5. Display each rectangle and its area and perimeter.

Source code:

```
#include<iostream>
using namespace std;
class Rectangle
{
public:
    float length,width,peri,ar;
    void setlength(float l)
    {
          length=l;
    }
    void setwidth(float w)
    {
          width=w;
    }
    float perimeter()
    {
          peri=2*(length+width);
          return peri;
    }
    float area()
    {
          ar=length*width;
          return ar;
    }
    void show()
    {
          cout<<"Length="<<length<<"\n";
          cout<<"width="<<width<<"\n";
    }
    int sameArea(Rectangle r)
    {
          if(area()==r.area())
                return 1;
          else return 0;
    }
};
int main()
{
    float len,wid,len2,wid2;
    cout<<"Enter the length(1st rectangle) :";
    cin>>len;
```

```
    cout<<"Enter the width(1st rectangle) :";
    cin>>wid;
    Rectangle rec1,rec2;
    rec1.setlength(len);
    rec1.setwidth(wid);
    cout<<"Enter the length(2nd rectangle) :";
    cin>>len2;
    cout<<"Enter the width(2nd rectangle) :";
    cin>>wid2;
    rec2.setlength(len2);
    rec2.setwidth(wid2);
    cout<<"1st rectangle : \n Area="<<rec1.area()<<"Perimeter
              ="<<rec1.perimeter()<<"\n";
    cout<<"2nd rectangle : \n Area="<<rec2.area()<<"Perimeter
              ="<<rec2.perimeter()<<"\n";
    cout<<"\n Are both areas same? : if yes 1 else 0
              :\n"<<rec1.sameArea(rec2);
}
```

Screen-Shot:

```
Enter the length(1st rectangle) :6
Enter the width(1st rectangle) :3.5
Enter the length(2nd rectangle) :9
Enter the width(2nd rectangle) :10.5
1st rectangle :
 Area=21Perimeter =19
2nd rectangle :
 Area=94.5Perimeter =39

 Are both areas same? : if yes 1 else 0 :
0
```