LAB - 7

Q1. Wap to create a class named A and accept two no by using getdata() and Create a class B derived from A which will display that two no by using putdata().

```
#include <iostream>
using namespace std;
class A
{
private:
   int a;
   int b;
public:
   void getdata(void);
   void putdata(void);
};
void A::getdata(void)
{
   cout << "Enter first number: ";
   cin >> a;
   cout << "Enter second number: ";
   cin >> b;
}
void A::putdata(void)
{
   cout << "a= " << a << ",b= " << b << endl;
}
class B : public A
{
public:
   B()
   {
      cout << "Class B is called" << endl;
   }
};
int main()
{
   B num;
   num.getdata();
   num.putdata();
   return 0;
}
```

```
Class B is called
Enter first number: 12
Enter second number: 24
a= 12,b= 24
```

Q2 Wap create a Number class which will accept two no. And create another class Calculate, derived from Number class which will display GCD of that two no by using appropriate function.

```
#include <iostream>
using namespace std;
class A
{
protected:
   int n1, n2, i, GCD;
```

```
public:
  void accept()
  {
    cout << "\n Enter First Number : ";
    cin >> n1;
    cout << "\n Enter Second Number : ";
    cin >> n2;
  }
};
class B : public A
{
public:
  void calc()
  {
    for (i = 1; i <= n1 && i <= n2; i++)
    {
      if (n1 % i == 0 && n2 % i == 0)
        GCD = i;
    }
  }
  void disp()
  {
    cout << "\n GCD of " << n1 << " and " << n2 << " is " << GCD << endl;
  }
};
int main()
{
  B obj;
  obj.accept();
  obj.calc();
  obj.disp();
}
```

```
Enter First Number : 28
Enter Second Number : 49
GCD of 28 and 49 is 7
```

Q3.Wap create a Father class data member is name and age. And create Son class, derived from Father which will accept name and age. if son age is greater than Father age it display error otherwise it display all info about Father and son.

```
#include <iostream>
#include <string>
#include <stdio.h>
using namespace std;
class calculate;
class Father
{
protected:
  string name;
  int age;
public:
  void getdata()
  {
    cout << "\n Enter Father's Name:";
```

```
        getline(cin,name);
        cout << " Enter Father's Age:";
        cin >> age;
    }
};
class Son : public Father
{
    int age1;
    string son_name;
public:
    void getdata1()
    {
        cout << "\n Enter Son's Name:";
        fflush(stdin);
        getline(cin,son_name);
        cout << " Enter Son's Age:";
        cin >> age1;
    }
    void check()
    {
        if (age1 > age)
        {
            cout << " !!! ERROR !!!";
        }
        else
        {
            cout << " Displaying Details :\n";
            cout << "\t Father's Name = " << name;
            cout << "\n\t Father's Age = " << age;
            cout << "\n\t Son's Name = " << son_name;
            cout << "\n\t Son's Age= " << age1;
        }
    }
};
int main()
{
    Son obj;
    obj.getdata();
    obj.getdata1();
    obj.check();
    return 0;
}
```

```
Enter Father's Name:P
Enter Father's Age:40

Enter Son's Name:A
Enter Son's Age:20
Displaying Details :
        Father's Name = P
        Father's Age = 40
        Son's Name = A
        Son's Age= 20
```

Q4. Wap to create Rectangle class having data member width & height and create another class Area which will derived from Rectangle. And display it's area.

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

```
{
private:
   float length;
public:
   float breadth;
   void Enter_lb(void)
   {
      cout << "\n Enter the width of the rectangle : ";
      cin >> length;
      cout << "\n Enter the height of the rectangle : ";
      cin >> breadth;
   }
   float get_l(void)
   {
      return length;
   }
};
class Area : public Rectangle
{
private:
   float area;
public:
   void Rec_area(void)
   {
      area = get_l() * breadth;
   }
   void Display(void)
   {
      cout << "\n Length = " << get_l();
      cout << "\n Width = " << breadth;
      cout << "\n Area = " << area;
   }
};
int main()
{
   Area r1;
   r1.Enter_lb();
   r1.Rec_area();
   r1.Display();
   return 0;
}
```

```
Enter the Length of the rectangle : 30

Enter the Breadth of the rectangle : 20

Length = 30
Width = 20
Area = 600
```

95.Wap to create a Student class which data members are roll, name & mark of 3 subject. And create Result class which will display all info along with grade.
if 90-80 O
if 80-70 E like that

```
#include <iostream>
#include <stdio.h>
```

```
using namespace std;
class student
{
   int roll;
   char name[25];
public:
   student()
   {
      cout << "Enter the student's information" << endl;
   }
   void getdata()
   {
      cout << "\n enter the student roll no. ";
      cin >> roll;
      cout << "\n enter the student name  ";
      cin >> name;
   }
   void putdata()
   {
      cout << "\n the student roll no: " << roll;
      cout << "\n the student name: " << name;
   }
};
class marks : public student
{
   int sub1;
   int sub2;
   int sub3;
   int avg;
public:
   void input()
   {
      getdata();
      cout << "\n enter the marks 1: ";
      cin >> sub1;
      cout << "\n enter the marks 2: ";
      cin >> sub2;
      cout << "\n enter the marks 3: ";
      cin >> sub3;
   }
   void output()
   {
      putdata();
      cout << "\n marks 1: " << sub1;
      cout << "\n marks 2: " << sub2;
      cout << "\n marks 3: " << sub3 << "\n";
   }
   void calculate()
   {
      avg = (sub1 + sub2 + sub3) / 3;
      if(avg>=90)
         cout<<"\nO grade"<<" with total Marks "<< avg*3 <<endl;
```

```
        if(avg>=80 && avg < 90)
            cout<<"\nE grade"<<" with total Marks "<< avg*3 <<endl;
        if(avg>=70 && avg < 80)
            cout<<"\nA grade"<<" with total Marks "<< avg*3 <<endl;
        if(avg>=60 && avg < 70)
            cout<<"\nB grade"<<" with total Marks "<< avg*3 <<endl;
        if(avg>=50 && avg < 60)
            cout<<"\nC grade"<<" with total Marks "<< avg*3 <<endl;
        if(avg>=40 && avg < 50)
            cout<<"\nD grade"<<" with total Marks "<< avg*3 <<endl;
        if(avg<40)
            cout<<"FAIL!!!";
    }
};
int main()
{
    marks m1;
    int ch;
    int count = 0;
    do
    {
        cout << "\n1.input data";
        cout << "\n2.output data";
        cout << "\n3.Calculate Grade";
        cout << "\n4.exit\n";
        cout << "\nEnter the choice :: ";
        cin >> ch;
        switch (ch)
        {
        case 1:
            m1.input();
            count++;
            break;
        case 2:
            m1.output();
            break;
        case 3:
            m1.calculate();
            break;
        }
    } while (ch != 4);
}
```

```
1.input data
2.output data
3.Calculate Grade
4.exit

Enter the choice :: 1

 enter the student roll no.  1

 enter the student name  Anupam

 enter the marks1: 90

 enter the marks2: 89

 enter the marks3: 97

1.input data
2.output data
3.Calculate Grade
4.exit

Enter the choice :: 2

 the student roll no: 1
 the student name: Anupam
 marks1: 90
 marks2: 89
 marks3: 97

1.input data
2.output data
3.Calculate Grade
4.exit

Enter the choice :: 3

O grade with total Marks 276

1.input data
2.output data
3.Calculate Grade
4.exit

Enter the choice :: 4
```