

Object Oriented Programming

Shaikh Zainab Arif

220459

Q31}

```
#include <iostream>
using namespace std;
int isPrime(int num) {
    if (num <= 1)
        return 0;
    for (int i = 2; i * i <= num; ++i)
        if (num % i == 0)
            return 0;
    return 1;
}
int main() {
    int n;
    cout << "Shaikh Zainab Arif 220459 \n";
    cout << "Enter a positive integer n: ";
    cin >> n;
    cout << "Prime numbers: ";
    for (int i = 2; i <= n; ++i)
        if (isPrime(i))
            cout << i << " ";
    cout << endl;
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter a positive integer n: 10
Prime numbers: 2 3 5 7

C:\Users\Yusuf\Desktop\zainab>

Q32}

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "Shaikh Zainab Arif 220459 \n";
    cout << "Enter an integer: ";
    cin >> num;
    if (num <= 1) {
        cout << num << " is not a prime number." << endl;
        return 0;
    }
    bool isPrime = true;
    for (int i = 2; i * i <= num; ++i) {
        if (num % i == 0) {
            isPrime = false;
            break;
        }
    }
    if (isPrime)
        cout << num << " is a prime number." << endl;
    else
        cout << num << " is not a prime number." << endl;
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter an integer: 7
7 is a prime number.

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter an integer: 11
11 is a prime number.

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter an integer: 59
59 is a prime number.

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter an integer: 4
4 is not a prime number.

C:\Users\Yusuf\Desktop\zainab>

Q33}

```
#include<iostream>
using namespace std;
class Employee{
public:
    int emp_id;
    char name[10];
    float salary;
};
int main(){
    Employee e;
    cout << "Shaikh Zainab Arif 220459 \n";
    cin >> e.emp_id >> e.name >> e.salary;
    cout << "Employee id:"<<e.emp_id<<endl;
    cout << "Employee name:"<<e.name<<endl;
    cout << "Employee salary:"<<e.salary<<endl;
    return 0;
}
```

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
1
zainab
10000
Employee id:1
Employee name:zainab
Employee salary:10000

C:\Users\Yusuf\Desktop\zainab>

Q34}

```
#include <iostream>
using namespace std;
int main() {
    const int baseRateUpTo100 = 200;
    const int baseRateOver100 = 500;
    const int additionalRateOver100 = 100;
    int mileage;
    cout << "Shaikh Zainab Arif 220459 \n";
    cout << "Enter the number of miles: ";
    cin >> mileage;

    int totalPrice = (mileage <= 100) ? mileage * baseRateUpTo100 :
    100 * baseRateUpTo100 + (mileage - 100) * additionalRateOver100;

    cout << "Total price: $" << totalPrice << endl;
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter the number of miles: 100
Total price: \$20000

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter the number of miles: 300
Total price: \$40000

C:\Users\Yusuf\Desktop\zainab>

Q35}

```
1  #include <iostream>
2  using namespace std;
3  class Date {
4  public:
5      int day;
6      int month;
7      int year;
8  };
9  int main() {
10     Date d;
11     cout << "Shaikh Zainab Arif \n 220459 \n";
12     cin >> d.day >> d.month >> d.year;
13     cout << "Date: " << d.day << "/" << d.month << "/" << d.year;
14     return 0;
15 }
16
17
```

(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif
220459
21
1
2007
Date: 21/1/2007
C:\Users\Yusuf\Desktop\zainab>

Q36}

```
#include<iostream>
using namespace std;
class Date{
private:
    int day;
    int month;
    int year;
public:
    void getdata(int d , int m , int y){
        day = d;
        month = m;
        year = y;
    }
    void display(){
        cout << "Date : "<<day<<"/"<<month<<"/"<<year<<endl;
    }
};
int main(){
    class Date d;
    cout << "Shaikh Zainab Arif 220459 \n";
    int d1,m1,y1;
    d1=21;
    m1=1;
    y1=2007;
    d.getdata(d1,m1,y1);
    d.display();
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>g++ Q36.cpp

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Date :21/1/2007

C:\Users\Yusuf\Desktop\zainab>

Q37}

```
#include<iostream>
using namespace std;
class Date{
private:
int day;
int month;
int year;
public:
void getdata(){
cout << "Enter day , month , year:"<<endl;
cin >> day >> month >> year;
}
void display(){
cout << "Date : "<<day<<"/"<<month<<"/"<<year<<endl;
}
};
int main(){
class Date d;
d.getdata();
d.display();
return 0;
}
```

(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Yusuf\Desktop\zainab>a.exe

Enter day , month , year:

21 1 2007

Date :21/1/2007

C:\Users\Yusuf\Desktop\zainab>

Q38}

```
#include<iostream>
using namespace std;
class sample{
private:
int x;
int y;
public:
void accept(){
cout << "Enter values of x & y:"<<endl;
cin >> x >> y;
}
void display(){
cout<<"Sum : "<<sum()<<endl;
cout<<"Diff : "<<diff()<<endl;
cout<<"Pro : "<<pro()<<endl;
cout<<"Div : "<<div()<<endl;
}
int sum(){
return x+y;
}
int diff(){
return x-y;
}
int pro(){
return x*y;
}
int div(){
return x/y;
}
};
int main(){
sample s;
s.accept();
s.display();
return 0;
}
```

C:\Users\Yusuf\Desktop\

Enter values of x & y:

10 2

Sum :12

Diff :8

Pro :20

Div :5

C:\Users\Yusuf\Desktop\

Q39}

```
1  #include<iostream>
2  using namespace std;
3  class sample{
4  private:
5  int x;
6  int y;
7  public:
8  void accept();
9  void display();
10 int sum();
11 int diff();
12 int pro();
13 int div();
14 };
15 void sample::accept(){
16 cout << "Enter values of x & y:"<<endl;
17 cin >> x >> y;
18 }
19 void sample::display(){
20 cout<<"Sum : "<<sum()<<endl;
21 cout<<"Diff : "<<diff()<<endl;
22 cout<<"Pro : "<<pro()<<endl;
23 cout<<"Div : "<<div()<<endl;
24 }
25 int sample::sum(){
26 return x+y;
27 }
28 int sample::diff(){
29 return x-y;
30 }
31 int sample::pro(){
32 return x*y;
33 }
34 int sample::div(){
35 return x/y;
36 }
37 int main(){
38 sample s;
39 cout << "Shaikh Zainab Arif 220459 \n";
40 s.accept();
41 s.display();
42 return 0;
43 }
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter values of x & y:
10 2
Sum :12
Diff :8
Pro :20
Div :5

C:\Users\Yusuf\Desktop\zainab>g++ Q39.cpp

C:\Users\Yusuf\Desktop\zainab>a.exe
Shaikh Zainab Arif 220459
Enter values of x & y:
4
2
Sum :6
Diff :2
Pro :8
Div :2

C:\Users\Yusuf\Desktop\zainab>

Q40}

```
#include<iostream>
using namespace std;
class Sample{
private:
int rollno;
float percentage;
public:
void getdata(){
cout << "Enter roll no:";
cin >> rollno;
cout << "Enter percentage : ";
cin >> percentage;
}
void putdata(){
cout << "Roll No = " << rollno ;
cout << " Percenatge = " << percentage << endl;
}
};
int main(){
Sample obj1 , obj2;
obj1.getdata();
obj2.getdata();
obj1.putdata();
obj2.putdata();
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter roll no:59
Enter percentage : 87
Enter roll no:53
Enter percentage : 88
Roll No = 59 Percenatge = 87
Roll No = 53 Percenatge = 88

C:\Users\Yusuf\Desktop\zainab>

Q41}

<pre>#include<iostream> using namespace std; class Sample{ private: int rollno; float percentage; public: void getdata(){ cout << "Enter roll no:"; cin >> rollno; cout << "Enter percentage : "; cin >> percentage; } void putdata(){ cout << "Roll No = " << rollno ; cout << " : Percenatge = " << percentage << endl; } }; int main(){ Sample obj[5]; for(int i = 0 ; i < 5 ; i++){ obj[i].getdata(); } for(int i = 0 ; i < 5 ; i++){ obj[i].putdata(); } }</pre>	<pre>C:\Users\Yusuf\Desktop\zainab> Enter roll no:59 Enter percentage : 87 Enter roll no:53 Enter percentage : 89 Enter roll no:58 Enter percentage : 88 Enter roll no:51 Enter percentage : 80 Enter roll no:48 Enter percentage : 83 Roll No = 59 Percenatge = 87 Roll No = 53 Percenatge = 89 Roll No = 58 Percenatge = 88 Roll No = 51 Percenatge = 80 Roll No = 48 Percenatge = 83 C:\Users\Yusuf\Desktop\zainab></pre>
---	---

Q42}

<pre>#include<iostream> using namespace std; class Sample{ private: int rollno; float percentage; public: void getdata(){ cout << "Enter roll no:"; cin >> rollno; cout << "Enter percentage : "; cin >> percentage; } void putdata(){ cout << "Roll No = " << rollno ; cout << " : Percenatge = " << percentage << endl; } void hg(Sample obj1 , Sample obj2){ if(obj1.percentage > obj2.percentage){ obj1.putdata(); }else{ obj2.putdata(); } } }; int main(){ Sample obj1,obj2,obj3; obj1.getdata(); obj2.getdata(); cout << "Highest percentage:"<<endl; obj3.hg(obj1,obj2); }</pre>	<pre>C:\Users\Yusuf\Desktop\zainab>g++ Q42.cpp C:\Users\Yusuf\Desktop\zainab>a.exe Enter roll no:59 Enter percentage : 87 Enter roll no:48 Enter percentage : 83 Highest percentage: Roll No = 59 Percenatge = 87 C:\Users\Yusuf\Desktop\zainab></pre>
---	--

Q43]

```
#include <iostream>
using namespace std;
class Account {
private:
    int accountNumber;
    double balance;
public:
    void getdata();
    void putdata();
}accounts[5];
void Account::getdata(){
    cout << "Enter Account Number";
    cin >> accountNumber;
    cout << "Enter Balance for account ";
    cin >> balance;
}
void Account::putdata(){
    if(balance > 2000){
        cout << "Account no:" << accountNumber << endl;
        cout << "Balance: " << balance << endl;
    }
}
int main() {
    for (int i = 0; i < 5; ++i){
        accounts[i].getdata();
    }
    for(int i = 0; i < 5; ++i){
        accounts[i].putdata();
    }
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter Account Number01
Enter Balance for account 2000
Enter Account Number02
Enter Balance for account 1000
Enter Account Number03
Enter Balance for account 4000
Enter Account Number04
Enter Balance for account 1200
Enter Account Number05
Enter Balance for account 3000
Account no:3
Balance: 4000
Account no:5
Balance: 3000
C:\Users\Yusuf\Desktop\zainab>

Q44}

```
#include <iostream>
using namespace std;
class Account {
public:
    int accountNumber;
    double balance;
};

int main() {
    int n;
    cout << "Enter the number of accounts: ";
    cin >> n;
    Account accounts[n];
    for (int i = 0; i < n; ++i) {
        cout << "Enter Account Number for account " << i + 1 << ": ";
        cin >> accounts[i].accountNumber;
        cout << "Enter Balance for account " << i + 1 << ": ";
        cin >> accounts[i].balance;
    }
    int maxIndex = 0;
    double maxBalance = accounts[0].balance;
    for (int i = 1; i < n; ++i) {
        if (accounts[i].balance > maxBalance) {
            maxBalance = accounts[i].balance;
            maxIndex = i;
        }
    }
    cout << "Account with the greatest balance: ";
    cout << "Account Number: " << accounts[maxIndex].accountNumber ;
    cout << " Balance: " << maxBalance << endl;
    return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a.exe
Enter the number of accounts: 3
Enter Account Number for account 1: 01
Enter Balance for account 1: 1000
Enter Account Number for account 2: 02
Enter Balance for account 2: 3000
Enter Account Number for account 3: 03
Enter Balance for account 3: 2000
Account with the greatest balance: Account Number: 2 Balance: 3000
C:\Users\Yusuf\Desktop\zainab>

Q45}

```
#include<iostream>
using namespace std;
class Employee{
private:
char name[10];
float bs;
public:
void getdata();
void putdata();
float gs();
};
void Employee::getdata(){
cout << "Enter name:";
cin >> this->name;
cout << "Enter basic salary: ";
cin >> this->bs;
}
void Employee::putdata(){
cout << this->name << " Basic: " << this->bs << " Gross:" << this->gs() <<
}
float Employee::gs(){
float hra , da , ta , gross;
hra = this->bs * 0.15;
da = this->bs * 0.35;
ta = 500;
gross = this->bs + hra + ta + da;
return gross;
}
int main(){
Employee employee[5];
int noOfEmployees = sizeof(employee)/sizeof (employee[0]);
for(int i = 0; i < noOfEmployees ; ++i){
employee[i].getdata();
}
cout << "Gross Salary:"<<endl;
for(int i = 0 ; i < noOfEmployees ; ++i){
employee[i].putdata();
}
return 0;
}
```

C:\Users\Yusuf\Desktop\zainab>a
Enter name:zainab
Enter basic salary: 2000
Enter name:jenny
Enter basic salary: 1000
Enter name:jenifer
Enter basic salary: 4000
Enter name:yusuf
Enter basic salary: 3000
Enter name:ali
Enter basic salary: 6000
Gross Salary:
zainab Basic: 2000 Gross:3500
jenny Basic: 1000 Gross:2000
jenifer Basic: 4000 Gross:6500
yusuf Basic: 3000 Gross:5000
ali Basic: 6000 Gross:9500
C:\Users\Yusuf\Desktop\zainab>

Q46}

```
#include<iostream>
#include<string.h>
using namespace std;
class Worker{
private:
char name[30];
char skill[20];
public:
void getdata(){
cout << "Enter name:";
cin >> name;
cout << "Enter skill:";
cin >> skill;
}
void putdata(){
if((strcmp(skill,"plumber"))==0){
cout << "Worker name: " << name << endl;
}
}
};
int main(){
int n;
cout << "Enter number of workers:";
cin >> n;
Worker worker[n];
for(int i = 0; i < n; i++){
worker[i].getdata();
}
for(int i = 0; i < n; i++){
worker[i].putdata();
}
}
```

C:\Users\Yusuf\Desktop\zainab>
Enter number of workers:4
Enter name:zainab
Enter skill:engineer
Enter name:max
Enter skill:plumber
Enter name:jenny
Enter skill:artist
Enter name:alex
Enter skill:plumber
Worker name : max
Worker name : alex
C:\Users\Yusuf\Desktop\zainab>

Q47}

```
class Student{
private:
char name[30];
char grade;
float m1,m2,m3,avg;
public:
void getdata(){
cout << "Enter name:";
cin >> name;
cout << "Enter marks of 3 subjects:";
cin >> m1>>m2>>m3;
}
void putdata(){
avg = (m1+m2+m3)/3;
if(avg >= 75){
grade = 'A';
}else if((avg < 75) && (avg >= 60)){
grade = 'B';
}else if((avg < 60) && (avg >= 40)){
grade = 'C';
}else{
grade = 'F';
}
if(grade == 'A'){
cout << "Name : " << name << endl;
cout << "Average : " << avg << endl;
cout << "Grade : " << grade << endl;
}
}
};

int main(){
int n;
cout << "Enter number of students:";
cin >> n;
Student student[n];
for(int i = 0;i < n; i++){
student[i].getdata();
}
for(int i = 0;i < n;i++){
student[i].putdata();
}
}
```

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Yusuf\Desktop\zainab>g++ Q47.cpp

C:\Users\Yusuf\Desktop\zainab>a.exe

Enter number of students:3

Enter name:zainab

Enter marks of 3 subjects:89

90

87

Enter name:jenny

Enter marks of 3 subjects:40

40

40

Enter name:jenifer

Enter marks of 3 subjects:30

20

30

Name :zainab

Average :88.6667

Grade :A

C:\Users\Yusuf\Desktop\zainab>