

OOP-LAB Task 4

Roll No: 24P-0706

Dept: BS-CS

Name: Aazan Noor Khuwaja

Section : 2D

Qns1: Write a program to define two constructors to find out the maximum values.

Code:

```
#include<iostream>

using namespace std;

class max_value{
    private:
        float m_value;
    public:
        max_value(float a, float b){
            if(a>b){
                m_value=a;
            }
            else{
                m_value=b;
            }
        }
        max_value(float a, float b, float c){
            if(a>b && a>c){
                m_value=a;
            }
            else if(b>a && b>c){
                m_value=b;
            }
        }
    }
```

```

    }
    else{
        m_value=c;
    }
}

void display(){
    cout<<"Max value: "<<m_value<<endl;
}

};

int main(){
    max_value m1(2.5, 3.7);
    m1.display();
    max_value m2(10.2, 4.3, 5.6);
    m2.display();
    return 0;
}

```

Output:

```

PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> g++ -g qns1.cpp -o ./output
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> ./output
Max value: 3.7
Max value: 10.2
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4>

```

Qns 2:

Imagine a tollbooth at a bridge. Cars passing by the booth are expected to pay a 50 cent toll. Mostly they do, but sometimes a car goes by without paying. The tollbooth keeps track of the number of cars that have gone by, and of the total amount of money collected Model this tollbooth with a class called tollbooth. The two data items are a type unsigned int to hold the total

number of cars, and a type double to hold the total amount of money collected. A constructor initializes both of these to 0. A member function called `payingCar()` increments the car total and adds 0.50 to the cash total. Another function, called `nopayCar()`, increments the car total but adds nothing to the cash total. Finally, a member function called `display()` displays the two totals. Make appropriate member functions `const`.

Include a program to test this class. This program should allow the user to push one key to count a paying car, and another to count a nonpaying car. Pushing the Esc key should cause the program to print out the total cars and total cash and then exit.

Code:

```
#include <iostream>

#include <conio.h>

using namespace std;

class toll_booth {
private:
    unsigned int total_cars;
    double total_money;

public:
    toll_booth(){
        total_cars=0;
        total_money=0;
    }
    void paying_car() {
        total_cars++;
        total_money += 0.5;
```

```

        cout<<"paying car: "<<total_cars<<"\nTotal Money :"<<total_money<<endl;
    }
    void nopay_car() {
        total_cars++;
        cout<<"non paying car: "<<total_cars<<endl;
    }
    void display() const {
        cout<<"Final Result"<<endl;
        cout << "Total cars: " << total_cars << endl;
        cout << "Total money: " << total_money << endl;
    }
    unsigned int get_total_cars() const {
        return total_cars;
    }

    double get_total_money() const {
        return total_money;
    }
};

int main() {
    toll_booth booth;

    char ch;

    cout << "Press 'p' for paying car, 'n' for nonpaying car, and 'Esc' to exit and display totals." << endl;
    while (true) {
        ch=_getch();
        if (ch == 27) {
            booth.display();
            break;
        } else if (ch == 'p' || ch == 'P') {

```

```

        booth.paying_car();
    } else if (ch == 'n' || ch == 'N') {
        booth.nopay_car();
    }
    else{
        cout<<"Input is not correct!"<<endl;
    }
}
return 0;
}

```

Output:

```

PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> g++ -g qns2.cpp -o ./output
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> ./output
Press 'p' for paying car, 'n' for nonpaying car, and 'Esc' to exit and display totals.
paying car: 1
Total Money :0.5
paying car: 2
Total Money :1
paying car: 3
Total Money :1.5
non paying car: 4
non paying car: 5
non paying car: 6
non paying car: 7
paying car: 8
Total Money :2
Final Result
Total cars: 8
Total money: 2
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4>

```

Qns3: Create a C++ program to simulate a simple bank account management system using OOP concepts.

Code:

```

#include<iostream>

using namespace std;

```

```

class bank_acc{
    private:
        string account_number;
        string account_holder_name;
        float balance;
    public:
        bank_acc(){
            account_number="N/A";
            account_holder_name="Unknown";
            balance=0;
        }
        bank_acc(string acc_no, string acc_holder_name, float bal){
            account_number=acc_no;
            account_holder_name=acc_holder_name;
            balance=bal;
        }
        ~bank_acc(){
            cout<<"Account Number:"<<account_number<<" Closed"<<endl;
        }
        void deposit(double amount){
            balance+=amount;
            cout<<"Amount Deposited: "<<amount<<endl;
        }
        void withdraw(double amount){
            if(balance>amount){
                balance-=amount;
                cout<<"Amount Withdrawn: "<<amount<<endl;
            }
            else{

```

```
        cout<<"Not sufficient Balance because we have to leave balance greater than zero"<<endl;
    }
}

void display(){
    cout<<"Account Number: "<<account_number<<endl;
    cout<<"Account Holder Name: "<<account_holder_name<<endl;
    cout<<"Balance: "<<balance<<endl;
}

};

int main(){
    bank_acc b1;
    b1.display();
    bank_acc b2("4520284", "Qasim", 1500);
    b2.display();
    b2.deposit(500);
    b2.withdraw(1800);
    b2.display();

    return 0;
}
```

Output:

```
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> g++ -g qns3.cpp -o ./output
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> ./output
Account Number: N/A
Account Holder Name: Unknown
Balance: 0
Account Number: 4520284
Account Holder Name: Qasim
Balance: 1500
Amount Deposited: 500
Amount Withdrawn: 1800
Account Number: 4520284
Account Holder Name: Qasim
Balance: 200
Account Number:4520284 Closed
Account Number:N/A Closed
PS C:\Users\Azan Noor\OneDrive\Desktop\Lab Task Opp\labtask-4> |
```