

Assignment 3

Q1. Write a menu driven program to calculate volume of the box(length * width * height). Provide parameterless, parameterized(with 3 parameters) and single parameterized constructor. Create the local objects in respective case and call the function to calculate area. Menu options -> 1. Calculate Volume with default values 2. Calculate Volume with length,breadth and height with same value 3. Calculate Volume with different length,breadth and height values.

```
#include<iostream>

using namespace std;

class box{
int length;
int width;
int height;
public:
box()
{
    length=10;
    width=5;
    height=4;
}
box(int val)
{
    length=val;
    width=val;
    height=val;
}
box(int l,int w,int h)
{
    length=l;
    width=w;
    height=h;
}
void calculateVolume()
{
    int volume=length*width*height;
```

```

        cout<<"Volume of box is: "<<volume<<endl;
    }
};

int menu()
{
    int n;
    printf("for exit press 0\n");
    printf("for calculate with default value 1\n");
    printf("for calculte with same value 2\n");
    printf("for calculating different values\n");
    printf("enter choice\n");
    scanf("%d",&n);
    return n;
}

int main()
{
    int ch;
    while ((ch=menu())!=0)
    {
        switch (ch)
        {
            case 1:
            {
                box b1;
                b1.calculateVolume();
                break;
            }
            case 2:{
                cout<<"Enter value for calculating volume\n";
                int val;
                cin>>val;
                box b2(val);
            }
        }
    }
}

```

```
        b2.calculateVolume();
    }

    case 3:
    {
        int l,w,h;
        cout<<"Enter length width and height of box\n";
        cin>>l>>w>>h;
        box b3(l,w,h);
        b3.calculateVolume();
    }
    default:
        break;
    }
}
return 0;
}
```

```

PS D:\CDAC\cppvscode> g++ Assignment3.1.cpp
PS D:\CDAC\cppvscode> .\a.exe
for exit press 0
for calculate with default value 1
for calculte with same value 2
for calculating different values
enter choice
1
Volume of box is: 200
for exit press 0
for calculate with default value 1
for calculte with same value 2
for calculating different values
enter choice
2
Enter value for calculating volume
5
Volume of box is: 0
Enter length width and height of box
3
5
7
Volume of box is: 105
for exit press 0
for calculate with default value 1
for calculte with same value 2
for calculating different values
enter choice
2
Enter value for calculating volume
5
Volume of box is: 125

```

Q2. Imagine a tollbooth at a bridge. Cars passing by the booth are expected to pay a fifty-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 all data members to 0. A member function called payingCar() increments the car total and adds 0.50 to the cash total. An other function, called nopayCar() increments the car total but adds nothing to the cash total. Finally, a member function called printOnConsole() displays the two totals and number of paying as well as non paying cars total.

```

#include<iostream>

using namespace std;

class Toalbooth
{
    int paycar;
    int totalCar;

```

```

int toalAmount;

public:
Toalbooth()
{
    paycar=0;
    totalCar=0;
    toalAmount=0;
}
void payingCar()
{
    toalAmount+=50;
    paycar+=1;
    totalCar+=1;
}
void noPayCar()
{
    totalCar+=1;
}
void printOnConsole()
{
    cout<<"Total car going through booth: "<<totalCar<<endl;
    cout<<"Total Paying cars: "<<paycar<<endl;
    cout<<"Total non paying cars: "<<totalCar-paycar<<endl;
    cout<<"Total Toal amount: "<<toalAmount<<endl;
}
};

int menu()
{
    int n;
    printf("for exit press 0\n");
    printf("for paying car 1\n");

```

```

    printf("for no paying car 2\n");
    printf("for display total car and amount \n");
    printf("enter choice\n");
    scanf("%d",&n);
    return n;
}
int main()
{
    Toalbooth t1;
    int ch;
    while ((ch=menu())!=0)
    {
        switch (ch)
        {
            case 1:
                t1.payingCar();
                break;
            case 2:
                t1.noPayCar();
                break;
            case 3:
                t1.printOnConsole();
                break;
            default :
                cout<<"Wrong"<<endl;
        }
    }
    return 0;
}

```

```

for exit press 0
for paying car 1
for no paying car 2
for display total car and amount
enter choice
1
for exit press 0
for paying car 1
for no paying car 2
for display total car and amount
enter choice
2
for exit press 0
for paying car 1
for no paying car 2
for display total car and amount
enter choice
2
for exit press 0
for paying car 1
for no paying car 2
for display total car and amount
enter choice
3
Total car going through booth: 4
Total Paying cars: 2
Total non paying cars: 2
Total Toal amount: 150

```

Q3. Write a class Address with data members (string building, string street, string city ,int pin) Implement constructors, getters, setters, accept(), and display() methods. Test the class functionalities by creating the object of class and calling all the functions.

```

#include <iostream>

using namespace std;

class Address
{
    string building;
    string street;
    string city;
    int pin;
public:
    Address()
    {
        building="Sunbeam";
        street="Shanivar Peth";
        city="karad";
    }

```

```
        pin=415525;
    }
    void setBulding(string building)
    {
        this->building=building;
    }
    void setStreet(string street)
    {
        this->street=street;
    }
    void setCity(string city)
    {
        this->city=city;
    }
    void setPin(int pin)
    {
        this->pin=pin;
    }

    string getBulding()
    {
        return building;
    }
    string getStreet()
    {
        return street;
    }
    string getCity()
    {
        return city;
    }
    int getpin()
```



```

{
    return pin;
}

void accept()
{
    cout<<"enter building ,street,city,pin";
    cin>>building>>street>>city>>pin;
}

void display()
{
    cout<<"building name is: "<<building<<endl;
    cout<<"Street name is: "<<street<<endl;
    cout<<"city name is: "<<city<<endl;
    cout<<"pin code is: "<<pin<<endl;
}

};

int main()
{
    Address a1;
    a1.display();
    Address a2;
    a2.setBulding("villa");
    a2.setStreet("Patan colony");
    a2.setCity("satara");
    a2.setPin(45555);
    cout<<"get building name: "<<a2.getBulding()<<endl;
    cout<<"get Street name: "<<a2.getStreet()<<endl;
    cout<<"getcity name: "<<a2.getCity()<<endl;
    cout<<"get pin code: "<<a2.getpin()<<endl;
    Address a3;
    a3.accept();
    a3.display();
}

```

}

```
PS D:\CDAC\cppvscode> g++ Assignment3.3.cpp
PS D:\CDAC\cppvscode> .\a.exe
building name is: Sunbeam
Street name is: Shanivar Peth
pin code is: 415525
for getting building name: villa
for getting Street name: Patan colony
for getting city name: satara
for getting pin code: 45555
enter building ,street,city,pin
kunj
peth
pune
755225
building name is: kunj
Street name is: peth
city name is: pune
pin code is: 755225
```