

LAB-TASK#1

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Q1:

```
#include<iostream>
```

```
using namespace std;
```

```
class BankAccount{
```

```
    public:
```

```
        double balance;
```

```
        BankAccount(){
```

```
            balance = 250;
```

```
            cout<<"Balance = "<<balance<<endl;
```

```
        }
```

```
        BankAccount(int ammount){
```

```
            balance = ammount;
```

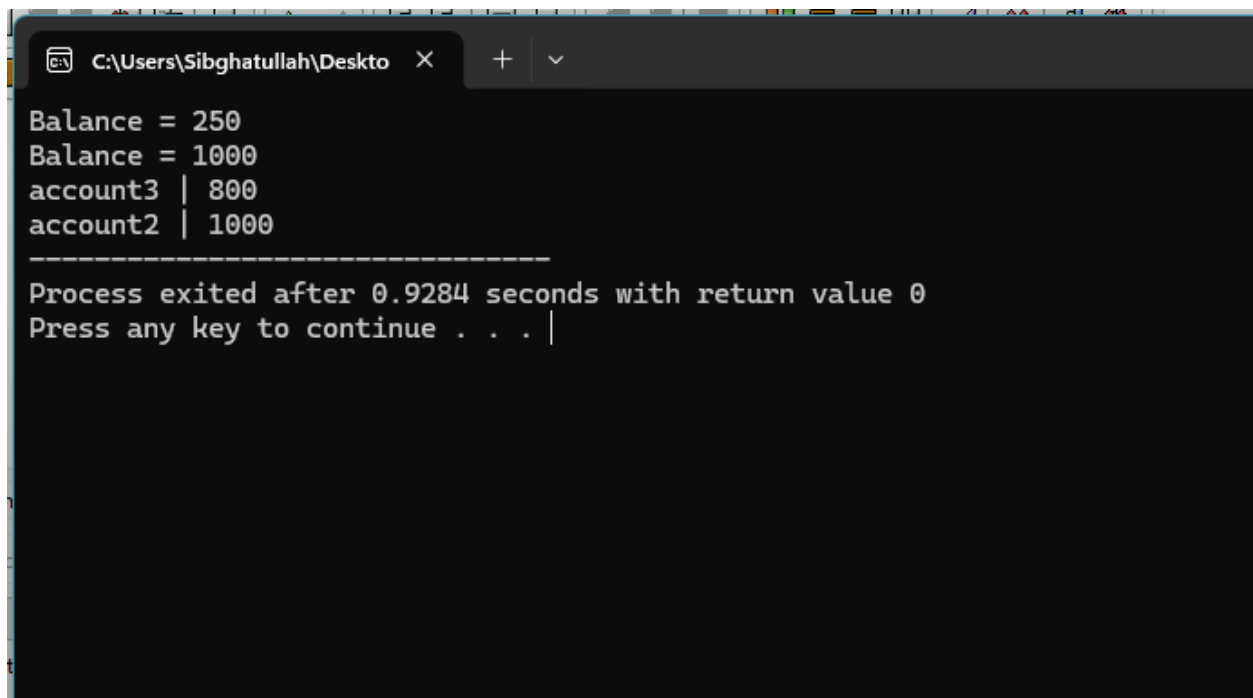
```
            cout<<"Balance = "<<balance<<endl;
```

```
        }
```

```
};
```

```
main(){  
    BankAccount account1;  
  
        BankAccount account2(1000);  
  
        BankAccount account3(account2);  
  
        account3.balance = account3.balance - 200;  
  
        cout<<"account3 | "<<account3.balance<<endl;  
  
        cout<<"account2 | "<<account2.balance;  
  
}
```

OUTPUT:



```
C:\Users\Sibghatullah\Desktop  
Balance = 250  
Balance = 1000  
account3 | 800  
account2 | 1000  
-----  
Process exited after 0.9284 seconds with return value 0  
Press any key to continue . . . |
```

Q2:

```
#include<iostream>
```

```
using namespace std;
```

```
class Exam{
```

```
    public:
```

```
        string* name;
```

```
        int* date;
```

```
        float* score;
```

```
        void setter(string name_, int date_, float score_){
```

```
            name = new string(name_);
```

```
            date = new int(date_);
```

```
            score = new float(score_);
```

```
        }
```

```
        string getter(){
```

```
            return *name;
```

```
        }
```

```
        int getter1(){
```

```
            return *date;
```

```
}
```

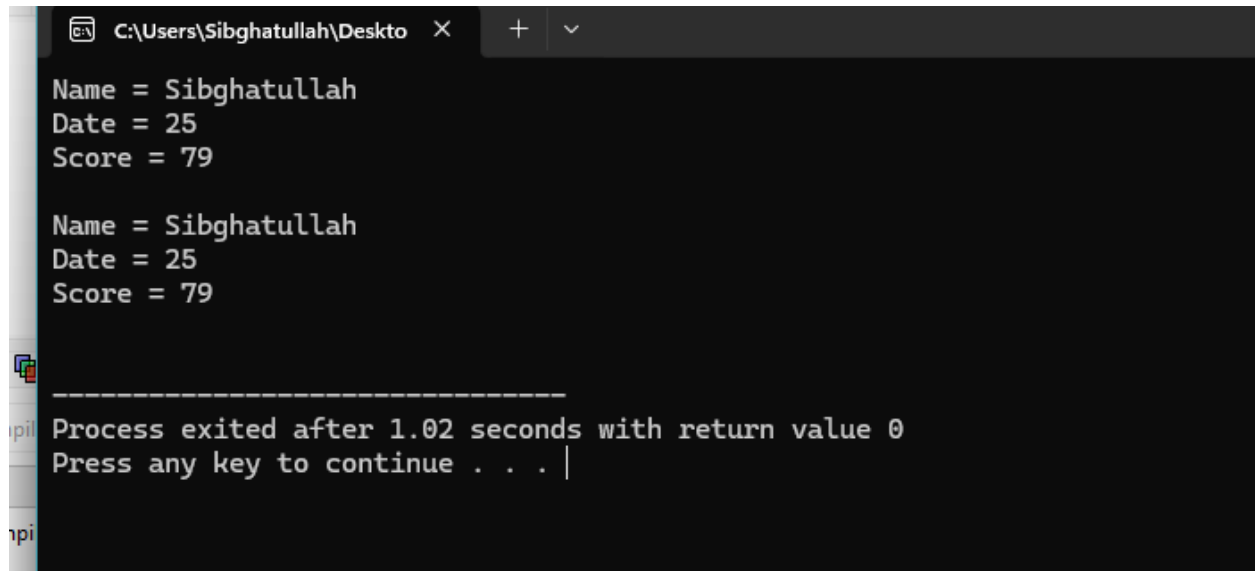
```
float getter2(){  
    return *score;  
}
```

```
void display(){  
    cout << "Name = "<<*name<<endl;  
    cout << "Date = "<<*date<<endl;  
    cout << "Score = "<<*score<<endl;  
    cout<<endl;  
}
```

```
};
```

```
int main(){  
    Exam e1;  
    e1.setter("Sibghatullah", 25,79);  
    e1.display();  
    Exam e2;  
    e2 = e1; // copy assignment construcor  
    e2.display();  
}
```

OUTPUT:

A screenshot of a Windows command prompt window. The title bar shows the file path 'C:\Users\Sibghatullah\Desktop' and standard window controls. The command prompt displays the following output: 'Name = Sibghatullah', 'Date = 25', 'Score = 79'. This is repeated once more. Below this, a horizontal line is shown, followed by the text 'Process exited after 1.02 seconds with return value 0' and 'Press any key to continue . . . |'.

```
C:\Users\Sibghatullah\Desktop >
Name = Sibghatullah
Date = 25
Score = 79

Name = Sibghatullah
Date = 25
Score = 79

-----
Process exited after 1.02 seconds with return value 0
Press any key to continue . . . |
```

Q3:

```
#include<iostream>
```

```
using namespace std;
```

```
class DeepBox{
```

```
public:
```

```
    int *n;
```

```
    DeepBox(int num){
```

```
        n = new int(num);
```

```
}
```

```
~DeepBox(){
```

```
    delete n;
```

```
}
```

```
DeepBox(const DeepBox& obj){
```

```
    n = new int(*obj.n);
```

```
}
```

```
DeepBox& operator=(const DeepBox& obj){
```

```
    if(this == &obj){
```

```
        return *this;
```

```
    }
```

```
    delete n;
```

```
    n = new int(*obj.n);
```

```
    return *this;
```

```
}
```

```
void display(){
```

```
    cout << "Value: " << *n << " address: " << n << endl;
```

```
}
```

```
};
```

```
class Box{
```

```
public:
```

```
    int *n;
```

```
    Box(int num){
```

```
        n = new int(num);
```

```
    }
```

```
    ~Box(){
```

```
        delete n;
```

```
    }
```

```
    Box(const Box& obj){
```

```
        n = obj.n;
```

```
    }
```

```
    Box& operator=(const Box& obj){
```

```
        if(this != &obj){
```

```
            delete n;
```

```
            n = obj.n;
```

```
        }
```

```
        return *this;
```

```
    }  
};  
  
int main(){  
    cout<<"deep copy"<<endl;  
    DeepBox db1(100);  
    db1.display();  
  
    DeepBox db2 = db1;  
    db2.display();  
  
    DeepBox db3(999);  
    db3 = db1;  
    db3.display();  
  
    *db2.n = 777;  
    cout << endl;  
    cout << "After changing db2:" << endl;  
    cout << "db1: "; db1.display();  
    cout << "db2: "; db2.display();  
  
    cout<<"shallow copy"<<endl;  
    Box b1(50);  
    Box b2 = b1;
```

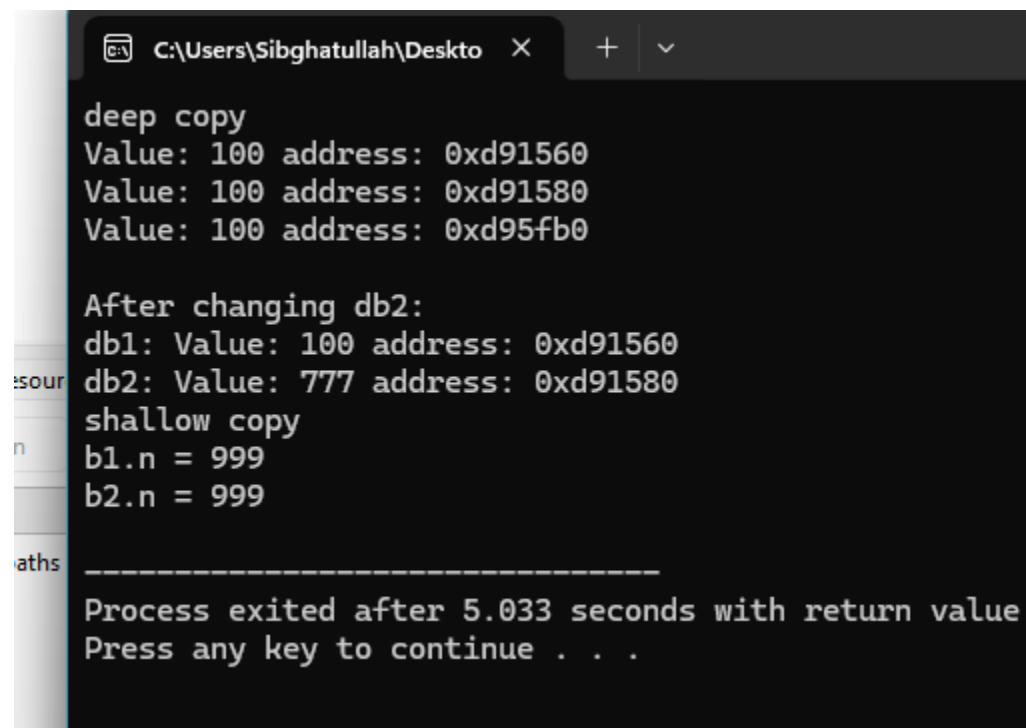
```
*b2.n = 999;

cout << "b1.n = " << *b1.n << endl;

cout << "b2.n = " << *b2.n << endl;

return 0;
}
```

OUTPUT:



```
deep copy
Value: 100 address: 0xd91560
Value: 100 address: 0xd91580
Value: 100 address: 0xd95fb0

After changing db2:
db1: Value: 100 address: 0xd91560
db2: Value: 777 address: 0xd91580
shallow copy
b1.n = 999
b2.n = 999

-----
Process exited after 5.033 seconds with return value
Press any key to continue . . .
```

