

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();

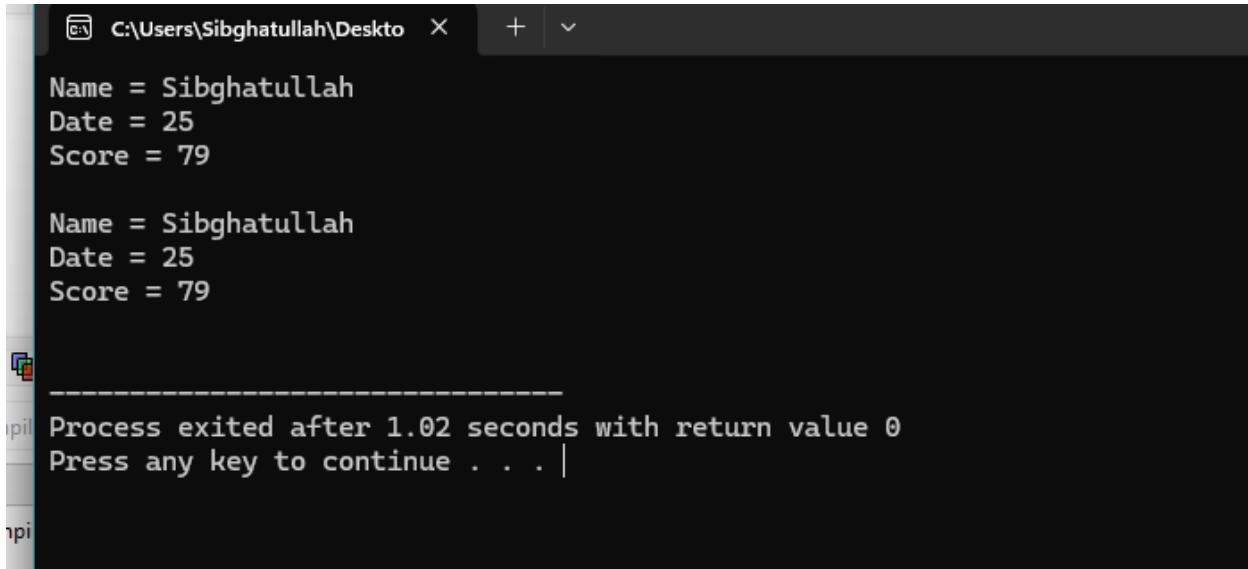
    Exam e2;

    e2 = e1; // copy assignment construcor

    e2.display();

}
```

OUTPUT:



```
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();
```

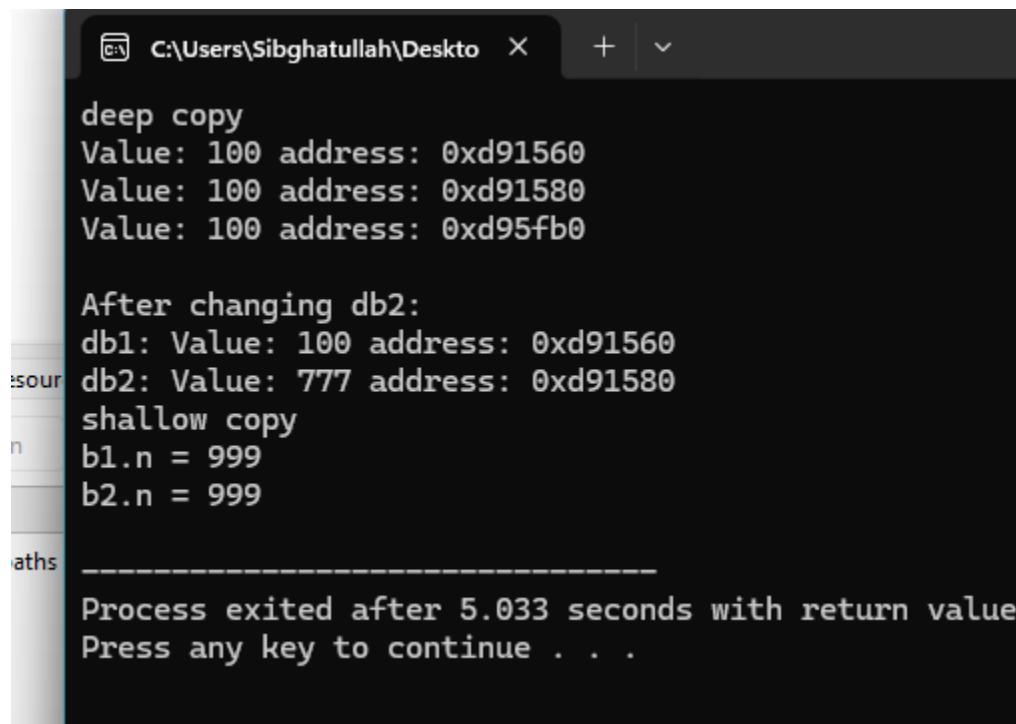
```
    DeepBox db3(999);  
    db3 = db1;  
    db3.display();
```

```
*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:



```
C:\Users\Sibghatullah\Desktop
```

```
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 . . .
```

