

**NATIONAL UNIVERSITY OF COMPUTER AND
EMERGING SCIENCES
PROGRAM: SOFTWARE ENGINEERING**



DATA STRUCTURES LAB
LAB TASK-01

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Q1 CODE:

```
#include<iostream>
```

```
using namespace std;
```

```
void swap1(int a, int b)
```

```
{
```

```
    int temp;
```

```
    cout<<"before swapping:"<<"a: "<<a<<endl<<"b: "<<b<<endl;
```

```
    temp=a;
```

```
    a=b;
```

```
    b=temp;
```

```
    cout<<"After swapping"<<"a: "<<a<<endl<<"b: "<<b;
```

```
}
```

```
int main()
```

```
{
```

```
    int a=5;
```

```
    int b=7;
```

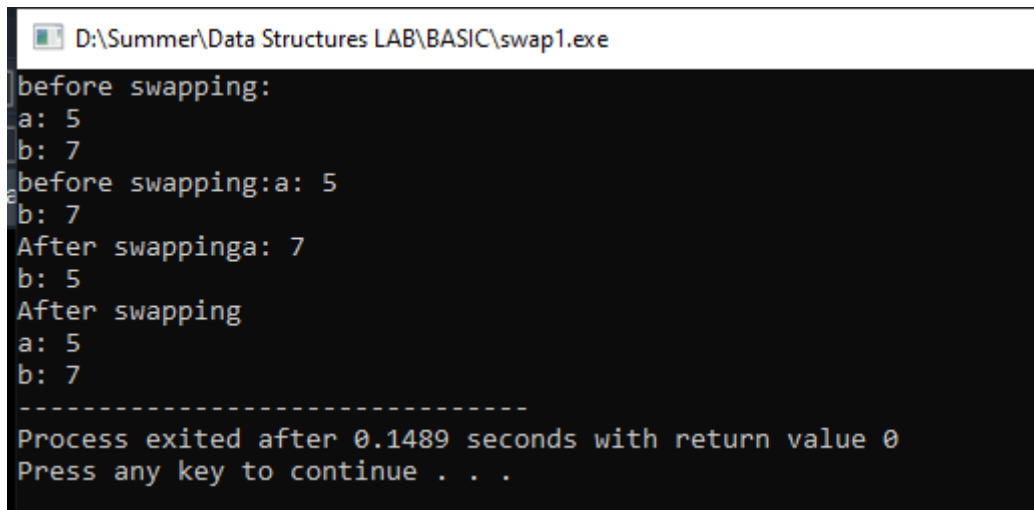
```
    cout<<"before swapping:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
```

```
    swap1(a,b);
```

```
    cout<<endl<<"After swapping"<<endl<<"a: "<<a<<endl<<"b: "<<b;
```

```
}
```

Output-01;



```
D:\Summer\Data Structures LAB\BASIC\swap1.exe
before swapping:
a: 5
b: 7
before swapping:a: 5
b: 7
After swappinga: 7
b: 5
After swapping
a: 5
b: 7
-----
Process exited after 0.1489 seconds with return value 0
Press any key to continue . . .
```

Q2 CODE:

```
#include<iostream>
```

```
using namespace std;
```

```
void swap2(int *a, int *b)
```

```
{
```

```
    int temp;
```

```
    cout<<"Before swapping in swap func:"<<endl<<"a: "<<*a<<endl<<"b:
"<<*b<<endl;
```

```


temp=*a;
*a=*b;
*b=temp;
cout<<"After swapping func:"<<endl<<"a: "<<*a<<endl<<"b: "<<*b<<endl;
}

int main()
{
    int a=5;
    int b=7;

    cout<<"Before swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
    swap2(&a,&b);
    cout<<"After swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
}

```

Output-02;

 D:\Summer\Data Structures LAB\BASIC\swap2.exe

```

Before swapping in main:
a: 5
b: 7
Before swapping in swap func:
a: 5
b: 7
After swapping func:
a: 7
b: 5
After swapping in main:
a: 7
b: 5

-----
Process exited after 0.1746 seconds with return value 0
Press any key to continue . . .

```

Q3 CODE:

```
#include<iostream>
```

```
using namespace std;
```

```
void swap3(int &a, int &b)
```

```
{
```

```
    int temp;
```

```
    cout<<"Before swapping in swap func:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
```

```
    temp=a;
```

```
    a=b;
```

```
    b=temp;
```

```
    cout<<"After swapping func:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
```

```
}
```

```
int main()
```

```
{
```

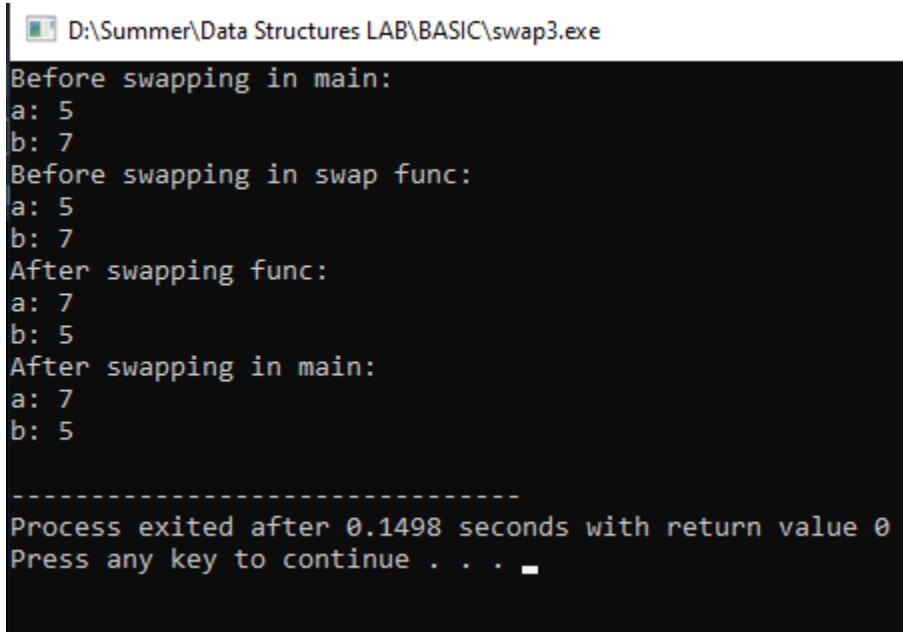
```
    int a=5;
```

```
    int b=7;
```

```
    cout<<"Before swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
```

```
swap3(a,b);  
cout<<"After swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;  
}
```

Output-03;



```
D:\Summer\Data Structures LAB\BASIC\swap3.exe  
Before swapping in main:  
a: 5  
b: 7  
Before swapping in swap func:  
a: 5  
b: 7  
After swapping func:  
a: 7  
b: 5  
After swapping in main:  
a: 7  
b: 5  
  
-----  
Process exited after 0.1498 seconds with return value 0  
Press any key to continue . . .
```

Q4 CODE:

```
#include<iostream>  
  
using namespace std;
```

```

void swap4(int **a, int **b)
{
    int temp;

    cout<<"Before swapping in swap func:"<<endl<<"a: "<<**a<<endl<<"b:
"<<**b<<endl;

    temp=**a;
    **a=**b;
    **b=temp;

    cout<<"After swapping func:"<<endl<<"a: "<<**a<<endl<<"b: "<<**b<<endl;
}

```

```

int main()
{
    int a=5;
    int b=7;


    int *x=&a;
    int *y=&b;

    cout<<"Before swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
    swap4(&x,&y);

    cout<<"After swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
}

```

Output-04;

 D:\Summer\Data Structures LAB\BASIC\swap4.exe

```
Before swapping in main:
a: 5
b: 7
Before swapping in swap func:
a: 5
b: 7
After swapping func:
a: 7
b: 5
After swapping in main:
a: 7
b: 5

-----
Process exited after 0.1524 seconds with return value 0
Press any key to continue . . . _
```

Q5 CODE:

```
#include<iostream>
```

```
using namespace std;
```

```
void swap5(int *&a, int *&b)
```

```
{
```

```
    int temp;
```

```
    cout<<"Before swapping in swap func:"<<endl<<"a: "<<*a<<endl<<"b:
"<<*b<<endl;
```



```

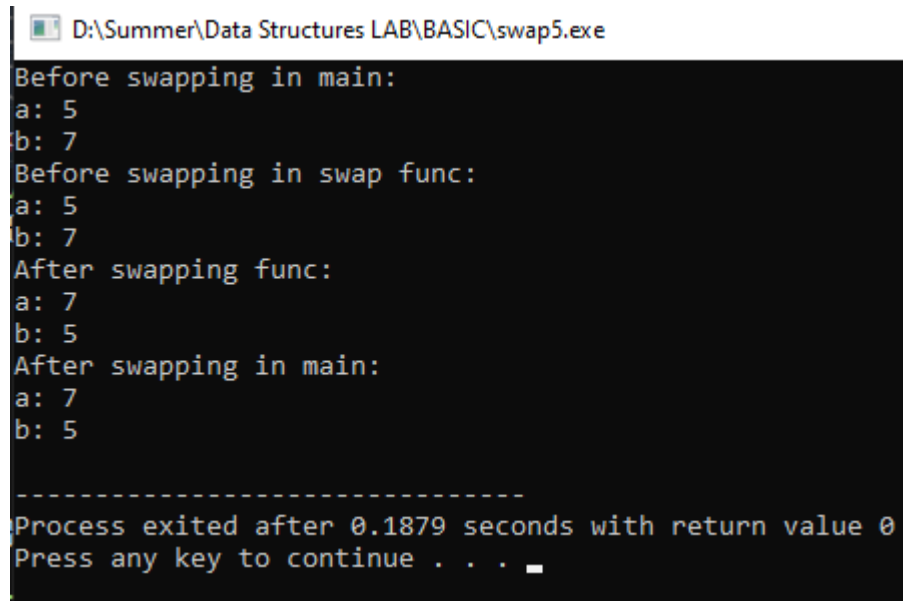
temp=*a;
*a=*b;
    *b=temp;
cout<<"After swapping func:"<<endl<<"a: "<<*a<<endl<<"b: "<<*b<<endl;
}

int main()
{
    int a=5;
    int b=7;

    int *x=&a;
    int *y=&b;
    cout<<"Before swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
    swap5(&x,&y);
    cout<<"After swapping in main:"<<endl<<"a: "<<a<<endl<<"b: "<<b<<endl;
}

```

Output-05;



```

D:\Summer\Data Structures LAB\BASIC\swap5.exe
Before swapping in main:
a: 5
b: 7
Before swapping in swap func:
a: 5
b: 7
After swapping func:
a: 7
b: 5
After swapping in main:
a: 7
b: 5

-----
Process exited after 0.1879 seconds with return value 0
Press any key to continue . . .

```