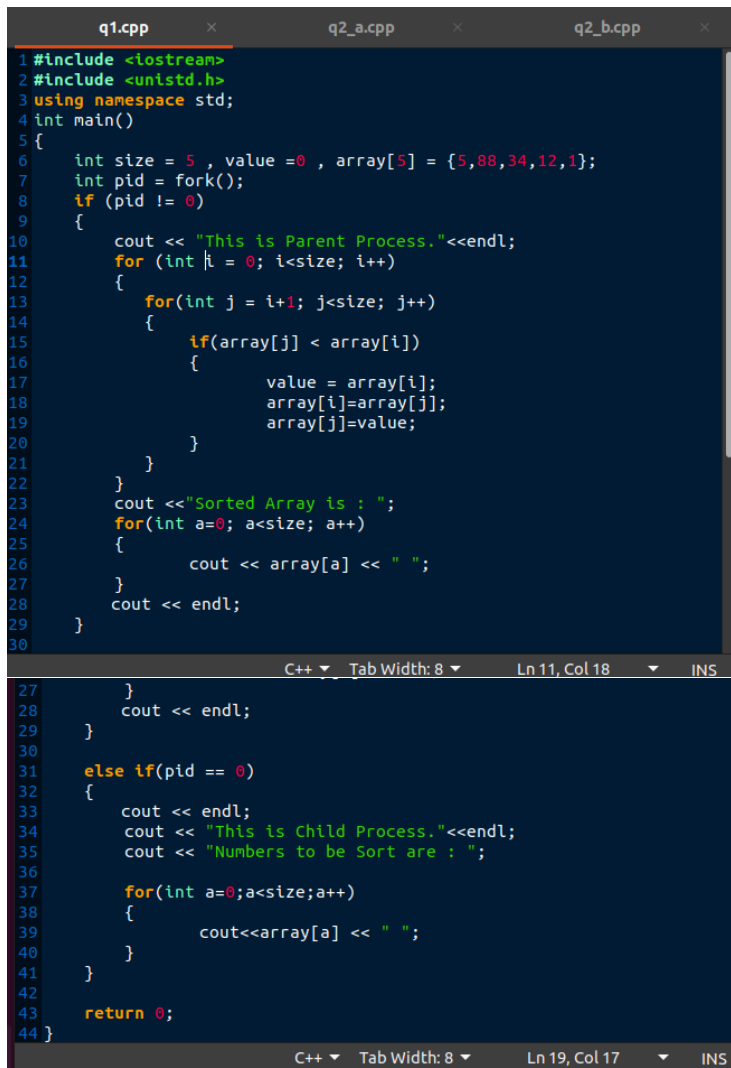


4B OS LAB-03 ASSIGNMENT

CS182019 | MUHAMMAD DANISH | 3B

Q1)



```
q1.cpp
1 #include <iostream>
2 #include <unistd.h>
3 using namespace std;
4 int main()
5 {
6     int size = 5 , value = 0 , array[5] = {5,88,34,12,1};
7     int pid = fork();
8     if (pid != 0)
9     {
10         cout << "This is Parent Process."<<endl;
11         for (int i = 0; i<size; i++)
12         {
13             for(int j = i+1; j<size; j++)
14             {
15                 if(array[j] < array[i])
16                 {
17                     value = array[i];
18                     array[i]=array[j];
19                     array[j]=value;
20                 }
21             }
22         }
23         cout <<"Sorted Array is : ";
24         for(int a=0; a<size; a++)
25         {
26             cout << array[a] << " ";
27         }
28         cout << endl;
29     }
30 }

q2_b.cpp
27 }
28 cout << endl;
29 }
30
31 else if(pid == 0)
32 {
33     cout << endl;
34     cout << "This is Child Process."<<endl;
35     cout << "Numbers to be Sort are : ";
36
37     for(int a=0;a<size;a++)
38     {
39         cout<<array[a] << " ";
40     }
41 }
42
43 return 0;
44 }
```

```
danish@Muhammad-Danish:~/OS Lab/Lab 03$ g++ -o q1 q1.cpp
danish@Muhammad-Danish:~/OS Lab/Lab 03$ ./q1
This is Parent Process.
Sorted Array is : 1 5 12 34 88
danish@Muhammad-Danish:~/OS Lab/Lab 03$
This is Child Process.
Numbers to be Sort are : 5 88 34 12 1
```

Q2_A)

```
q1.cpp x q2_a.cpp x
1 #include <iostream>
2 #include <unistd.h>
3 #include <sys/types.h>
4 #include <sys/wait.h>
5 #include <stdlib.h>
6
7 using namespace std;
8
9 int main()
10 {
11     if(fork()==0)
12     {
13         cout<<"1";
14         cout << endl;
15     }
16     else
17     {
18         wait(0);
19         cout <<"0";|
20         cout << endl;
21         exit(0);
22     }
23     cout << "0";
24     cout << endl;
25     return 0;
26 }
```

```
danish@Muhammad-Danish:~/05 Lab/Lab 03$ g++ -o q2_a q2_a.cpp
danish@Muhammad-Danish:~/05 Lab/Lab 03$ ./q2_a
1
0
0
danish@Muhammad-Danish:~/05 Lab/Lab 03$
```

First of all when `fork()` is called in the if statement it will generate a child of the parent process. When `wait(0)` is called the parent process will halt until the child process is executed,

Hence the output is 1, 0, 0 .

Q2_B)

```
q1.cpp  x  q2_a.cpp  x  q2_b.cpp
1 #include <iostream>
2 #include <unistd.h>
3 #include <sys/types.h>
4 #include <sys/wait.h>
5 #include <stdlib.h>
6
7 using namespace std;
8
9 int main()
10 {
11     if(fork()==0)
12     {
13         cout<<"1";
14         cout << endl;
15     }
16     else
17     {
18         //wait(0);
19         cout <<"0";
20         cout << endl;
21         exit(0);
22     }
23     cout << "0";
24     cout << endl;
25     return 0;
26 }
```

```
danish@Muhammad-Danish:~/05 Lab/Lab 03$ g++ -o q2_b q2_b.cpp
danish@Muhammad-Danish:~/05 Lab/Lab 03$ ./q2_b
0
danish@Muhammad-Danish:~/05 Lab/Lab 03$ 1
0
```

There is no call of wait() this means that the parent process will not halt and it will execute first. Than the child process printing the 1. And at the last value 0 in the main() parent process is printed.

Hence the output is 0 ,1 ,0 .