

# DATA STRUCTURES


## ASSIGNMENT 2

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Output for Task 1:

```
PS C:\Users\sugandhi saggu\Desktop\ds> gcc -Wall t1_skeleton.c t1_test_skeleton.c -o t1
PS C:\Users\sugandhi saggu\Desktop\ds> ./t1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
6 2 4 6 2 1 17 10 3 12 1 9 2 1 13 7 4 5 5 4
8 11 7 13 4 14 3 1 2 0 17 19 5 10 16 6 9 18 15 12
PS C:\Users\sugandhi saggu\Desktop\ds> |
```

Student STDOUT.txt 

```
1 *** Running array filling tests with 10 elements. ***
2
3 Ascending array is ascending: true
4 Descending array is descending: true
5 Uniform array is uniform: true
6
7 Random array is random: true
8 Random array is random no duplicates: false
9 Second random array is random: true
10 Second random array is random no duplicates: false
11 The two random arrays are different:true
12
13 The two random arrays no duplicates are different:true
14 Random array no duplicates is random and has no duplicates: true
15 Second random array no duplicates is random and has no duplicates: true
16
```

Expected STDOUT.txt 

```
1 *** Running array filling tests with 10 elements. ***
2
3 Ascending array is ascending: true
4 Descending array is descending: true
5 Uniform array is uniform: true
6
7 Random array is random: true
8 Random array is random no duplicates: false
9 Second random array is random: true
10 Second random array is random no duplicates: false
11 The two random arrays are different:true
12
13 The two random arrays no duplicates are different:true
14 Random array no duplicates is random and has no duplicates: true
15 Second random array no duplicates is random and has no duplicates: true
16
```

Output for Task 2 and Task 3:

```
PS C:\Users\sugandhi saggu\Desktop\ds> gcc -Wall t2_skeleton.c t1_skeleton.c t2_test_skeleton.c -o t1
PS C:\Users\sugandhi saggu\Desktop\ds> ./t1
1 7 14 0 9 4 18 2 5 11 15 16 13 12 6 19 3 8 17 10
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
PS C:\Users\sugandhi saggu\Desktop\ds> |
```

Student STDOUT.txt

```
1 Arrays of size 10000:
2 Selection sort
3 TEST | SORTED |
4 Ascending | YES |
5 Descending | YES |
6 Uniform | YES |
7 Random w duplicates | YES |
8 Random w/o duplicates | YES |
9
10
11 Insertion sort
12 TEST | SORTED |
13 Ascending | YES |
14 Descending | YES |
15 Uniform | YES |
16 Random w duplicates | YES |
17 Random w/o duplicates | YES |
18
19
20 Quick sort
21 TEST | SORTED |
22 Ascending | YES |
23 Descending | YES |
24 Uniform | YES |
25 Random w duplicates | YES |
26 Random w/o duplicates | YES |
27
28
29
30
31
```

Expected STDOUT.txt

```
1 Arrays of size 10000:
2 Selection sort
3 TEST | SORTED |
4 Ascending | YES |
5 Descending | YES |
6 Uniform | YES |
7 Random w duplicates | YES |
8 Random w/o duplicates | YES |
9
10
11 Insertion sort
12 TEST | SORTED |
13 Ascending | YES |
14 Descending | YES |
15 Uniform | YES |
16 Random w duplicates | YES |
17 Random w/o duplicates | YES |
18
19
20 Quick sort
21 TEST | SORTED |
22 Ascending | YES |
23 Descending | YES |
24 Uniform | YES |
25 Random w duplicates | YES |
26 Random w/o duplicates | YES |
27
28
29
30
31
```

The expected output and output of my code is same.

Output for Task 4:

```
[Running] cd "c:\Users\sugandhi saggu\Desktop\ds\" && gcc task4.c -o task4 && "c:\Users\sugandhi saggu\Desktop\ds\"task4
10 Zusaar Vasaa Dreamcast 2000
10 Zumba Fitness World Party Xbox One 2014
10 Zuma's Revenge Xbox 360 2012
10 Zuma's Revenge PC 2009
10 Zuma Deluxe Xbox 360 2006
10 Zuma PlayStation 3 2009
10 Zuma iPod 2006
10 Zuma Wireless 2005
10 Zuba Nintendo DS 2009
10 Zoop PlayStation 1996
Print
[Done] exited with code=0 in 3.111 seconds
```

We can find the top 5 games for each of last 20 years by forming a hashtable or a linked list and accessing them with the help of them.