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200801199@rajalakshmi.edu.in

NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » Problem Solving Through Programming In C (course)

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Course outline

Week 9 : Assignment 9

The due date for submitting this assignment has passed.

Due on 2023-09-27, 23:59 IST.

Assignment submitted on 2023-09-27, 20:08 IST

1) What is the worst case complexity of selection sort? ***1 point***

- a) O(nlogn)
- b) O(logn)
- c) O(n)
- d) $O(n^2)$

Yes, the answer is correct.
Score: 1

Accepted Answers:
d) $O(n^2)$

2) What is the best case and worst case complexity of ordered linear search? ***1 point***

- a) O(nlogn), O(logn)
- b) O(logn), O(nlogn)
- c) O(n), O(1)
- d) O(1), O(n)

Yes, the answer is correct.
Score: 1

Accepted Answers:
d) O(1), O(n)

3) Given an array arr = {12, 34, 47, 62, 85, 92, 95, 99,105} and key = 34; what are the mid values (corresponding array elements) generated in the first and second iterations? ***1 point***

Week 9 ()

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- a) 85 and 12
- b) 85 and 34
- c) 62 and 34
- d) 62 and 47

Yes, the answer is correct.
Score: 1

Accepted Answers:
b) 85 and 34

4) When the Binary search is best applied to an array? ***1 point***

- a) For very large size array
- b) When the array is sorted
- c) When the array elements are mixed data type
- d) When the array is unsorted

Yes, the answer is correct.
Score: 1

Accepted Answers:
b) When the array is sorted

5) Consider the array A[ ]= {5,4,9,1,3} apply the insertion sort to sort the array. ***1 point***
Consider the cost associated with each sort is 25 rupees, what is the total cost of the insertion sort for sorting the entire array?

- a) 25
- b) 50
- c) 75
- d) 100

Yes, the answer is correct.
Score: 1

Accepted Answers:
c) 75

6) Select the code snippet which performs unordered linear search iteratively? ***1 point***

a)
```
int unorderedLinearSearch(int arr[], int size, int data)
{
    int index;
    for(int i = 0; i < size; i++)
    {
        if(arr[i] == data)
        {
            index = i;
            break;
        }
    }
    return index;
}
```

b)
```
int unorderedLinearSearch(int arr[], int size, int data)
{
   int index;
   for(int i = 0; i < size; i++)
   {
      if(arr[i] == data)
      {
         break;
      }
   }
   return index;
}
```

c)
```
int unorderedLinearSearch(int arr[], int size, int data)
{
   int index;
   for(int i = 0; i <= size; i++)
   {
      if(arr[i] == data)
      {
         index = i;
         continue;
      }
   }
   return index;
}
```

d) None of the above

Yes, the answer is correct.
Score: 1

Accepted Answers:

a)
```
int unorderedLinearSearch(int arr[], int size, int data)
{
   int index;
   for(int i = 0; i < size; i++)
   {
      if(arr[i] == data)
      {
         index = i;
         break;
      }
   }
   return index;
}
```

7) ***1 point***

What will be the output?

```
#include<stdio.h>
#define func1(a,b) a > b ? b : a
#define func2(a,b); {temp=a;a=b;b=temp;}
int main()
{
   int a=3, b=5,temp;
   if((3+func1(a,b)) > b)
   func2(a,b);
   printf("%d %d", a,b);
   return 0;
}
```

- a) 3 5
- b) 3 0
- c) 5 0
- d) 5 3

Yes, the answer is correct.
Score: 1

Accepted Answers:
d) 5 3

8) Consider an array of elements arr[5]= {5,4,3,2,1}, what are the steps of insertions done while doing insertion sort in the array. ***1 point***

- a)
  4 5 3 2 1
  3 4 5 2 1
  2 3 4 5 1
  1 2 3 4 5
- b)
  5 4 3 1 2
  5 4 1 2 3
  5 1 2 3 4
  1 2 3 4 5
- c)
  4 3 2 1 5
  3 2 1 5 4
  2 1 5 4 3
  1 5 4 3 2
- d)
  4 5 3 2 1
  2 3 4 5 1
  3 4 5 2 1
  1 2 3 4 5

Yes, the answer is correct.
Score: 1

Accepted Answers:

a)
4 5 3 2 1
3 4 5 2 1
2 3 4 5 1
1 2 3 4 5

9) **1 point**

What will be the output of the following C code?

```
#include <stdio.h>
#if A == 1
   #define B 0
#else
   #define B 1
#endif
int main()
{
   printf("%d", B);
   return 0;
}
```

- a) 0
- b) 1
- c) 01
- d) None of the above

Yes, the answer is correct.
Score: 1

Accepted Answers:
b) 1

10) **1 point**

What will be the output?

```
#include <stdio.h>
#define a 10
int main()
{
  printf("%d ", a);
  int a=50;
  printf("%d ", a);
  return 0;
}
```

- a) 10 10
- b) 10 50
- c) 50 50
- d) Compilation error

Yes, the answer is correct.
Score: 1

Accepted Answers:
d) Compilation error