

CS143-Introduction to Problem Solving and Programming

Arrays in C

1. Given an array X with the following values, and variable $i = 3$:

X[0]	X[1]	X[2]	X[3]	X[4]	X[5]	X[6]	X[7]
10.0	15.0	6.0	5.0	20.0	0.0	1.5	2.5

Find the value of y in each of the following expressions:

- $y = X[i] + 1$
 - $y = X[i+1]$
 - $y = X[i/2]$
 - $y = X[i]/2$
 - $y = X[i*2]$
2. Trace the following program:

```
#include<stdio.h>
void main()
{
    int n, i, j, t, a[10];

    for (i = 0; i < 7; i++)
        a[i] = i;

    for (i =6; i>3; i--)
    {
        j = i-1;
        while(j > 2)
        {
            t = a[i-j];
            a[i-j] = a[7-i+j];
            a[7-i+j] = t;
            j--;
        }
    }

    for (i = 0; i<7; i++)
        printf("%d", a[i]);
}
```

3. Trace the following part of the program for the input array:

x

10	8	6	20	9	4	15	3	7
----	---	---	----	---	---	----	---	---

```
int p = 1, i;  
for(i = 0; i < 10; i++)  
    if(x[i] < x[p])  
        p = i;  
printf("\n%d", x[p]);
```

4. Write a program that reads 10 numbers in a one-dimensional array and computes their average, minimum, and maximum.
5. Write a program that reads 10 numbers in a one-dimensional array and calculates the sum of the array elements with an odd index and the sum of the array elements with and even index.