

Static Arrays

Exercises

CS185

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1. Which of the following array declarations compile?

- a) `int array0 = {1, 3, 2, 7};`
- b) `int array1[];`
- c) `int array2[3];`
- d) `int array3[] = {1, 3, 2, 7};`
- e) `int array4[3] = {1, 3, 2, 7};`
- f) `int array5[4] = {1, 3, 2, 7};`

- ☐ a
- ☐ b, e, f, g, and h
- ☐ c, d and f
- ☐ all of them

2. Given the following array: `int intArray[15];`
which of these indices are valid?

- a) 10
- b) 15
- c) 50
- d) 0
- e) -1
- f) -5

- ☐ a and d
- ☐ a, b and d
- ☐ all of them
- ☐ none of them

3. Write a function that takes an array of integers as parameter and uses a for loop to print it out.

Function prototype: `void printCharArrayForEach(int theArray[], int size)`

Answer

4. What does the following code print out?

Code

```
void modifyArrayParameter(int parameter[])
{
    parameter[0] = -5;
}

int main(void)
{
    int a[] = { 3, 2, 14, -2 };
    int i;
    std::cout << "Array a:" << std::endl;
    for (i = 0; i < 4; ++i)
    {
        std::cout << a[i] << std::endl;
    }

    modifyArrayParameter(a);

    std::cout << std::endl << "Array a:" << std::endl;
    for (i = 0; i < 4; ++i)
    {
        std::cout << a[i] << std::endl;
    }

    return 0;
}
```

Answer	
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5. Write a function that finds and returns the index of a user defined value in an array of integers. You should return **-1** if the user defined value is not found in the array. Function prototype: `int indexOf(int theArray[], int size, int value)`

Sample Run	<pre>int main(void) { int a[] = { 3, 2, 14, -2 }; std::cout << indexOf(a, 4, 14) << std::endl; std::cout << indexOf(a, 4, 20) << std::endl; return 0; }</pre>
Output	<pre>2 -1</pre>
Answer	

6. Write a function that finds and returns the smallest value in an array of integers.
Function prototype: `int smallestValueIn(int theArray[], int size)`

Sample Run	<pre>int main(void) { int a[] = { 3, 2, 14, -2 }; std::cout << smallestValueIn(a, 4) << std::endl; return 0; }</pre>
Output	-2
Answer	

7. What does the following code print out?

Code

```
int sign(int value)
{
    if (value < 0)
    {
        return -1;
    }

    if (value > 0)
    {
        return 1;
    }

    return 0;
}

int main(void)
{
    int mystery[] = { 3, 4, -5, 7, 9 , 10 , 5, 4 };

    for (int i = 0; i < 8; ++i)
    {
        mystery[i] *= sign(mystery[i]);
        mystery[i] += sign(mystery[i]) * mystery[i] / 2;
    }

    for (int i = 0; i < 8; ++i)
    {
        std::cout << mystery[i] << " ";
    }

    return 0;
}
```

Answer

8. What does the following code print out?

Code

```
void mysterySequence(int a[], int index, int n)
{
    if (n == 1)
    {
        return;
    }
    else
    {
        a[index] = a[index - 2] + a[index - 1];
        mysterySequence(a, index + 1, n - 1);
    }
}

int main(void)
{
    int i;
    int array[] = { 0,1,0,0,0,0,0,0,0,0,0 };

    mysterySequence(array, 2, 10);

    for (i = 0; i < 11; ++i)
    {
        std::cout << array[i] << " ";
    }

    return 0;
}
```

Answer