

King Saud University
College of Computer & Information Sciences
Computer Science Department

CSC111 Tutorial Week13 **Solution**

Arrays

Exercise 1: What would be the output of each of the following code fragments:

a) `int[] a = {1,2,3,9,8,7};`
`System.out.print(a.length);`

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b) `int[] a = {1,2,3,9,8,7};`
`System.out.println(a[0]);`
`System.out.print(a[5]);`

1

7

c) `int[] a = {1,2,3,9,8,7};`
`System.out.println(a[a.length]);` //array index out of array range
`System.out.print(a[a.length-3]);` //9

d) `double[] b = {1.1, 2.5, 4.6, 10.8};`
`b[-1] = 4.3;` //negative indices are not possible

e) `int a[] = new int[2];`
`a[0]=5;`
`a[1]=3;`

f) `int[] a = new int[10];`
`for(int i=0; i<a.length; i++){`
`a[i]=i;`
`System.out.print(a[i]+" ");`

0 1 2 3 4 5 6 7 8 9

```
g) String[] days = {"Sat", "Sun", "Mon", "Tues", "Wed", "Thurs", "Fri"};
   for(int i=0; i<days.length; i++)
       if(days[i].equals("Thurs") || days[i].equals("Fri"))
           System.out.println("Week End!");
       else
           System.out.println((days.length-2)-i+" days left for week
end");

5 days left for week end
4 days left for week end
3 days left for week end
2 days left for week end
1 days left for week end
Week End!
Week End!
```

Exercise 2: Tracing

a) Trace the following program

```
public class MyProgram {
    private int[] a;
    public MyProgram(int size){
        a = new int[size];
    }

    public void fillArray(){
        for(int i=0; i<a.length; i++)
            a[i]=i+1;
    }
    public int[] reverse(){
        int[] b = new int[a.length];
        for(int i=0; i<b.length; i++)
            b[i]=a[a.length-1-i];
        return b;
    }

    public int mul(int[] c)
    {
        int mul=1;
        for(int i=0; i<c.length; i++)
            mul *= c[i];
        return mul;
    }

    public void display()
    {
        for(int i=0; i<a.length; i++)
            System.out.print(a[i]+" ");
        System.out.println();
    }
}

public class Test {
    public static void main(String[] args){

        MyProgram a = new MyProgram(10);
        a.fillArray();
        a.display();
        int c[] = {3,5,2,1,4};
        System.out.println("Mul result = "+a.mul(c));
        int d[] = a.reverse();
        for(int i=0; i<d.length; i++)
            System.out.print(d[i]+" ");
        System.out.println();

    }
}

1 2 3 4 5 6 7 8 9 10
Mul result = 120
10 9 8 7 6 5 4 3 2 1
```

- b) Add a new method in MyProgram class that returns the sum of even numbers of attribute array a[]

```
public int sumEven() { //add this method to MyProgram class
    int sum = 0;
    for(int i=0; i<a.length; i++)
        if(a[i] % 2 == 0)
            sum+=a[i];
    return sum;
}
```

- c) Call the method sumEven() in main program and print its result. What is the printed result?

```
//add the following code to main program
int result = a.sumEven();
System.out.println(result);
```

Output:

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- d) Trace the following program

```
public class test{
    public static void main(String[] args){

        int [] a = new int[10];
        for ( int i = 0; i < 10; i++)
        {
            a[i] = i;
            System.out.println( a[i] );
        }
        for( int i = 0; i < 10; i++) {
            int index = a[9-i];
            a[i] = a[ index ];
            System.out.println( a[i] );
        }
    }
}
```

0
1
2
3
4
5
6
7
8
9
9
8
7
6
5
5
6
7
8
9

Exercise 3: Complete the following method that takes a string as an argument and returns this string as an array of chars (*hint: use `String.charAt(index)` that access a char at the specified index*).

```
public char[] charRepresentation(String s)
{
    char[] c = new char[s.length()];
    for(int i=0; i<c.length; i++)
        c[i]=s.charAt(i);
    return c;
}
```