

Week 11 Tutorial

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CSSE2002: Programming in the Large

This week we will be working on questions from the 2017 Semester Two Final Exam Paper.

1. Go to the UQ Library Website (library.uq.edu.au)
2. Select Past exam papers from the search dropdown
3. Enter CSSE2002 into the search field
4. Select 2017 Sem 2

Exclude the following questions:

1. 1b
2. 2a
3. 3
4. 4b

Question One

Make the below a declaration of a constant:

```
int maximum = 100;
```

What is printed out by this program?

```
public static void absArray(int [ ] a) {  
    for (int i = 0; i < a.length; i++)  
        if (a[i] < 0)  
            a[i] = -1 * a[i];  
}  
  
public static void main(String [ ] args) {  
    int [ ] values = {1, 3, -2, 0, -10, 9};  
    absArray(values);  
    for (int i = 0; i < values.length; i++)  
        System.out.println("values[" + i + "] = " +  
            values[i]);  
}
```

Question One

Make the below a declaration of a constant:

```
int maximum = 100;
```

```
static final int MAXIMUM = 100;
```

Question One

What is printed out by this program?

```
public static void absArray(int [ ] a) {
    for (int i = 0; i < a.length; i++)
        if (a[i] < 0)
            a[i] = -1 * a[i];
}

public static void main(String [ ] args) {
    int [ ] values = {1, 3, -2, 0, -10, 9};
    absArray(values);
    for (int i = 0; i < values.length; i++)
        System.out.println("values[" + i + "] = " +
            values[i]);
}
```

Question One

What is printed out by this program?

```
public static void absArray(int [ ] a) {  
    for (int i = 0; i < a.length; i++)  
        if (a[i] < 0)  
            a[i] = -1 * a[i];  
}  
  
public static void main(String [ ] args) {  
    int [ ] values = {1, 3, -2, 0, -10, 9};  
    absArray(values);  
    for (int i = 0; i < values.length; i++)  
        System.out.println("values[" + i + "] = " +  
            values[i]);  
}
```

values[0] = 1 values[1] = 3 values[2] = 2 values[3] = 0 values[4] =
10 values[5] = 9

Question One

```
public static void r(int[] a) {
    int[] b = a;
    r(b, 0, b.length - 1);
}

public static void r(int[] a, int i, int j) {
    if (i <= j) {
        int tmp = a[i];
        a[i] = a[j];
        a[j] = tmp;
        r(a, i + 1, j - 1);
    }
}

public static void main(String[] args) {
    int[] values = {1, 3, -2, 0, -10, 9};
    r(values);
    for (int i = 0; i < values.length; i++)
        System.out.println("values[" + i + "] = " +
            values[i]);
}
```

Question One

values[0] = 9

values[1] = -10

values[2] = 0

values[3] = -2

values[4] = 3

values[5] = 1

Question Two

```
public class Person {  
    private String name;  
    public Person(String n) { name = n; }  
    public String getName() { return name; }  
    public void setName(String n) { name = n ; }  
}
```

The class invariant for this class is indented to be that only legal characters are used in a persons name, as defined by the legalNameCharacter method below.

```
public static boolean legalNameCharacter(char c) {  
    return "a" <= c && c <= "z" k ||  
           "A" <= c && c <= "Z" k ||  
           c == "-" k || c == " ";  
}  
  
public class IllegalNameException extends Exception {  
}
```

Question Two

```
public class Person {
    private String name;
    public Person(String n) {
        if (!isValidName(n)) {
            throw new IllegalArgumentException();
        }
        name = n;
    }
    public String getName() {
        return name;
    }
    public void setName(String n) {
        if (!isValidName(n)) {
            throw new IllegalArgumentException();
        }
        name = n ;
    }
    private boolean isValidName(String name) {
```

Question Two

```
private boolean isValidName(String name) {  
    for (char letter : name) {  
        if (!legalNameCharacter(letter)) {  
            return false;  
        }  
    }  
    return true;  
}
```

Question Four

```
public class A {  
    public int m()  
    public int m(int x, int y)  
}
```

```
public class B extends A {  
    public int m(double x, double y)  
}
```

```
public class C extends B {  
    public int m()  
    public int m(int x, double y)  
}
```

1. b.m();

3. b.m(1, 2.1);

5. c.m(1.1, 2.1);

2. c.m(1, 2.1);

4. b.m(1, 2);

6. c.m(1, 2);

Question Four

1. A.m()
2. B.m(double, double)
3. B.m(double, double)
4. A.m(int, int)
5. B.m(double, double)
6. A.m(int, int)