Module 1 – Java Basics

Advanced Java Certification Training

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1. Write a program to generate 9's table.

```
1  package mod1;
2
3
4  /**
5   * @category Print 9's Table
6   * @author Akram MTir
7   * @since 04.05.2018
8   *
9   */
10
11 public class Nine_Table {
12
13     public static void main(String[] args) {
14
15         for (int i = 1; i <=10; i++)
16             System.out.println("8 x " + i + " = " + 9*i);
17
18     }
19
20 }
```

Problems Javadoc Declaration Console

```
<terminated> Nine_Table [Java Application] /usr/lib/jvm/java-1.8.0-openjdk-1.
8 x 1 = 9
8 x 2 = 18
8 x 3 = 27
8 x 4 = 36
8 x 5 = 45
8 x 6 = 54
8 x 7 = 63
8 x 8 = 72
8 x 9 = 81
8 x 10 = 90
```

2. Define Create an array of 10 integer and print only the even values.

```
1  package mod1;
2
3  /**
4   * @category Print Even numbers
5   * @author Akram MTir
6   * @since 04.05.2018
7   *
8   */
9
10 public class PrintEvenNumbers {
11
12     public static void main(String[] args) {
13
14         int arrNumber[] = {2,4,6,8,16,32,64,128,256,512};
15
16         for(int i =0; i< arrNumber.length; i++) {
17
18             if((arrNumber[i]%2) == 0)
19                 System.out.println("Found an even number, arrNumber[" + i +"] = " + arrNumber[i]);
20         }
21     }
```

Problems Javadoc Declaration Console

```
<terminated> PrintEvenNumbers [Java Application] /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.144-0.b01.el7_4.x86_64/jre/bin/java (Ma
Found an even number, arrNumber[0] = 2
Found an even number, arrNumber[1] = 4
Found an even number, arrNumber[2] = 6
Found an even number, arrNumber[3] = 8
Found an even number, arrNumber[4] = 16
Found an even number, arrNumber[5] = 32
Found an even number, arrNumber[6] = 64
Found an even number, arrNumber[7] = 128
Found an even number, arrNumber[8] = 256
Found an even number, arrNumber[9] = 512
```

3. Create an integer array of m rows and n columns (where m, n < 10) and print only the odd values.

```
1  package mod1;
2
3  public class PrintOddNumbers {
4
5
6      public static void main(String[] args) {
7
8          int arr2D_3x3[][] = {
9                                  {1,2,3},
10                                 {4,5,6},
11                                 {7,8,9}
12                         };
13
14         for(int i = 0; i < arr2D_3x3.length ; i++ ) {
15
16             for(int j=0; j < arr2D_3x3[i].length; j++ ) {
17
18                 if(arr2D_3x3[i][j]%2==1)
19                     System.out.printf("Odd Number at arr2D_3x3[%d][%d] = %d%n",  i, j, arr2D_3x3[i][j]);
20
```

Problems Javadoc Declaration Console

```
<terminated> PrintOddNumbers [Java Application] /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.144-0.b01.el7_4.x86_64/jre/bin/java (May 4, 2
Odd Number at arr2D_3x3[0][0] = 1
Odd Number at arr2D_3x3[0][2] = 3
Odd Number at arr2D_3x3[1][1] = 5
Odd Number at arr2D_3x3[2][0] = 7
Odd Number at arr2D_3x3[2][2] = 9
```

4. You need to print integers till 20, which loop construct is the best for this?

```
1  package mod1;
2
3  public class Loop_20_int {
4
5      private static final int NUMBER_TO_PRINT = 20;
6
7      public static void main(String[] args) {
8
9          int i =0;
10
11         do {
12             i++;
13             System.out.println(i);
14         }while(i<NUMBER_TO_PRINT);
15
16     }
17
18 }
```

Problems Javadoc Declaration Console

```
<terminated> Loop_20_int [Java Application] /usr/lib/jvm/java-1.8.0-c
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

5. Create 2 integer matrices of m rows and n column each and add these 2 matrices.

```
1  package mod1;
2
3  public class MatrixAdd {
4
5      public static void main(String[] args) {
6
7          int
8              arr2D_1 [][] = {{1,2,3}, {4,5,6}, {7,8,9}},
9              arr2D_2 [][] = {{10,11,12}, {13,14,15}, {16,17,18}},
10             arr2D_3 [][] = new int[3][3];
11
12         for (int i = 0;i < arr2D_1.length ;i++) {
13             for(int j = 0;j < arr2D_1[i].length ; j++) {
14                 arr2D_3 [i][j] = arr2D_1 [i][j] + arr2D_2 [i][j] ;
15                 System.out.print(   arr2D_3 [i][j] + " ");
16             }
17             System.out.println();
18
```

Problems @ Javadoc Declaration Console

```
<terminated> MatrixAdd [Java Application] /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.144-0.b01
11 13 15
17 19 21
23 25 27
```

6. For the above problem add the relevant code to check valid inputs. Hint: To add matrices they must be of equal dimension.

```
public static boolean checkDimension(int arr2D_1[][], int arr2D_2[][]) {

    for (int i = 0;i < arr2D_1.length ;i++) {
        //System.out.println(arr2D_1.length + " ,  "  +  arr2D_2.length );
        if ( arr2D_1.length != arr2D_2.length ) {

            return false;
        }

            for(int j = 0;j < arr2D_1[i].length ; j++) {
                //System.out.println(arr2D_1[i].length + " ,  "  +  arr2D_2[i].length );
                if(arr2D_1 [i].length != arr2D_2 [i].length) {
                    return false;
                }

            }

        }

    return true;

}
```