

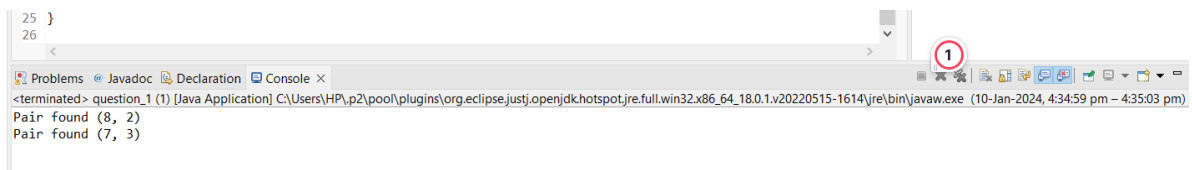
# Assignment-1

1,

```
public class question_1 {
    public static void findPair(int[] arr, int target)
    {
        for (int i = 0; i < arr.length - 1; i++)
        {
            for (int j = i + 1; j < arr.length; j++)
            {
                if (arr[i] + arr[j] == target)
                {
                    System.out.printf("Pair found (%d, %d) ", arr[i],
arr[j]);
                    System.out.println();
                }
            }
        }
    }
    public static void main (String[] args)
    {
        int[] arr = { 8, 7, 2, 5, 3, 1 };
        int target = 10;

        findPair(arr, target);
    }
}
```

Output:



```
25 }
26
<terminated> question_1 (1) [Java Application] C:\Users\HP\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_18.0.1.v20220515-1614\jre\bin\javaw.exe (10-Jan-2024, 4:34:59 pm - 4:35:03 pm)
Pair found (8, 2)
Pair found (7, 3)
```

2,

```
import java.util.Arrays;
public class question_2 {
    public static void product(int[] arr)
    {
        int n = arr.length;

        if (n == 0) {
            return;
        }

        int[] left = new int[n];
        int[] right = new int[n];
        left[0] = 1;
        for (int i = 1; i < n; i++) {
            left[i] = arr[i - 1] * left[i - 1];
        }
        right[n - 1] = 1;
        for (int j = n - 2; j >= 0; j--) {
            right[j] = arr[j + 1] * right[j + 1];
        }
        for (int i = 0; i < n; i++) {
            arr[i] = left[i] * right[i];
        }
    }

    public static void main(String[] args)
    {
        int arr[]={ 1, 2, 3, 4, 5 };
        int[] arr1 = { 5, 3, 4, 2, 6, 8 };

        product(arr);
        product(arr1);

        System.out.println(Arrays.toString(arr));
        System.out.println(Arrays.toString(arr1));
    }
}
```

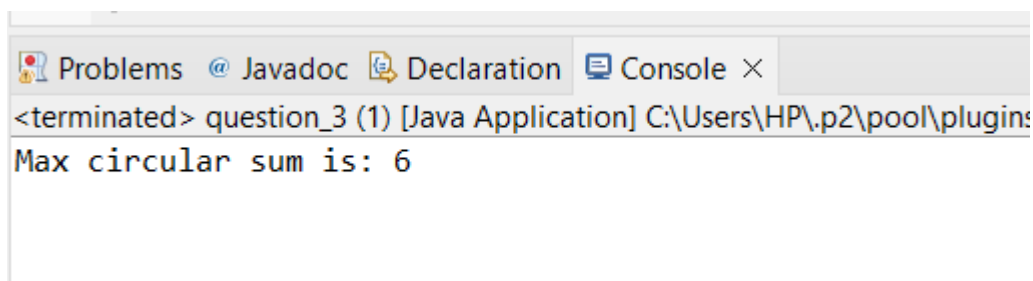
Output:

```
<terminated> question_2 (1) [Java Application] C:\Users\HP\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_18.0.1.v202205
[120, 60, 40, 30, 24]
[1152, 1920, 1440, 2880, 960, 720]
```

3,

```
public class question_3 {
    public static int maxCircularSum(int a[], int n)
    {
        if (n == 1)
            return a[0];
        int sum = 0;
        for (int i = 0; i < n; i++) {
            sum += a[i];
        }
        int curr_max = a[0], max_so_far = a[0],
            curr_min = a[0], min_so_far = a[0];
        for (int i = 1; i < n; i++)
        {
            curr_max = Math.max(curr_max + a[i], a[i]);
            max_so_far = Math.max(max_so_far, curr_max);
            curr_min = Math.min(curr_min + a[i], a[i]);
            min_so_far = Math.min(min_so_far, curr_min);
        }
        if (min_so_far == sum) {
            return max_so_far;
        }
        return Math.max(max_so_far, sum - min_so_far);
    }
    public static void main(String[] args)
    {
        int arr[] = {2, 1, -5, 4, -3, 1, -3, 4, -1} ;
        int n = arr.length ;
        System.out.println("Max circular sum is: "+maxCircularSum(arr, n));
    }
}
```

Output:

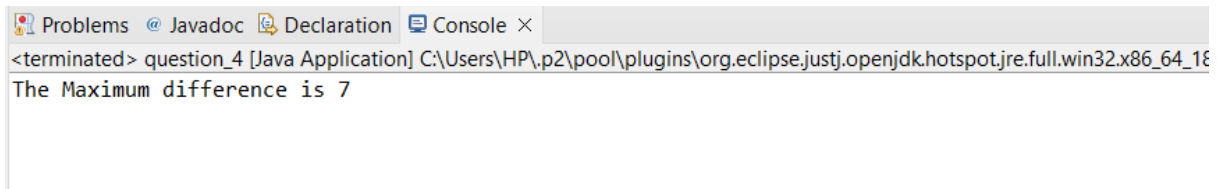
A screenshot of an IDE's console window. The window has a title bar with icons for Problems, Javadoc, Declaration, and Console. The console text shows the program has terminated and the output is "Max circular sum is: 6".

```
<terminated> question_3 (1) [Java Application] C:\Users\HP\p2\pool\plugins
Max circular sum is: 6
```

4,

```
public class question_4 {  
    public int maxDiff(int arr[], int arr_size)  
    {  
        int max_diff = arr[1] - arr[0];  
        int i, j;  
        for (i = 0; i < arr_size; i++)  
        {  
            for (j = i + 1; j < arr_size; j++)  
            {  
                if (arr[j] - arr[i] > max_diff)  
                    max_diff = arr[j] - arr[i];  
            }  
        }  
        return max_diff;  
    }  
    public static void main(String[] args)  
    {  
        question_4 maxdif = new question_4();  
        int arr[] = { 2, 7, 9, 5, 1, 3, 5 };  
        int n=arr.length;  
        System.out.println("The Maximum difference is " +  
                           maxdif.maxDiff(arr, n));  
    }  
}
```

Output:



The screenshot shows the Eclipse IDE's console window. The title bar includes 'Problems', 'Javadoc', 'Declaration', and 'Console'. The console output shows the program terminated successfully and printed 'The Maximum difference is 7'. The file path is partially visible as 'C:\Users\HP\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_18'.

```
<terminated> question_4 [Java Application] C:\Users\HP\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_18  
The Maximum difference is 7
```

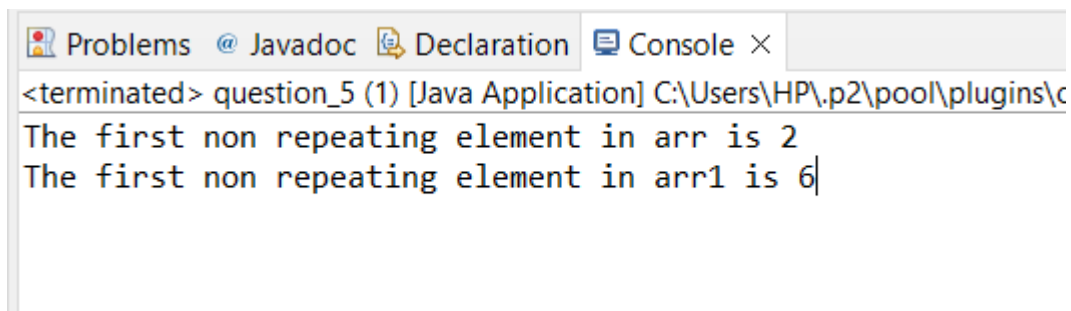
5,

```
public class question_5 {
    static int nonrepelement(int arr[], int n)
    {
        int j;
        for (int i = 0; i < n; i++) {
            for (j = 0; j < n; j++)
                if (i != j && arr[i] == arr[j])
                    break;
            if (j == n)
                return arr[i];
        }
        return -1;
    }

    public static void main(String[] args)
    {
        int arr[] = {-1, 2, -1, 3, 0};
        int n = arr.length;
        int arr1[] = {9, 4, 9, 6, 7, 4};
        int n1 = arr1.length;

        System.out.println("The first non repeating element in arr is
"+nonrepelement(arr, n));
        System.out.print("The first non repeating element in arr1 is
"+nonrepelement(arr1, n1));
    }
}
```

Output:

A screenshot of an IDE's console window. The window has a title bar with icons for Problems, Javadoc, Declaration, and Console. The console text shows the program's output: "The first non repeating element in arr is 2" and "The first non repeating element in arr1 is 6".

```
<terminated> question_5 (1) [Java Application] C:\Users\HP\p2\pool\plugins\c
The first non repeating element in arr is 2
The first non repeating element in arr1 is 6
```

6,

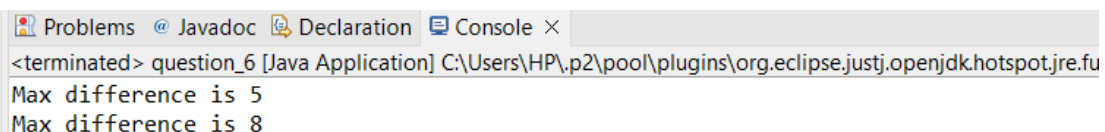
```
import java.util.Arrays;

public class question_6 {
    public static void main(String[] args)
    {
        int arr[] = {1, 15, 10} ;
        int k = 6;
        int n=arr.length;
        int arr1[]={1, 5, 15, 10};
        int n1=arr1.length;
        int k1=3;
        int ans = getMinDiff(arr, n, k);
        System.out.println("Max difference is "+ans);
        int ans1 = getMinDiff(arr1, n1, k1);
        System.out.println("Max difference is "+ans1);
    }
    public static int getMinDiff(int[] arr, int n, int k)
    {
        Arrays.sort(arr);
        int ans = arr[n - 1] - arr[0];

        int tempmin, tempmax;
        tempmin = arr[0];
        tempmax = arr[n - 1];

        for (int i = 1; i < n; i++) {
            if (arr[i] - k < 0)
                continue;
            tempmin = Math.min(arr[0] + k, arr[i] - k);
            tempmax
                = Math.max(arr[i - 1] + k, arr[n - 1] - k);
            ans = Math.min(ans, tempmax - tempmin);
        }
        return ans;
    }
}
```

Output:



The screenshot shows the Eclipse IDE's console window. The title bar includes 'Problems', '@ Javadoc', 'Declaration', and 'Console'. The console output shows the program has terminated successfully. The first line of output is 'Max difference is 5' and the second line is 'Max difference is 8'.

```
<terminated> question_6 [Java Application] C:\Users\HP\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.fu
Max difference is 5
Max difference is 8
```

Submitted By:

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