LAB EXAM

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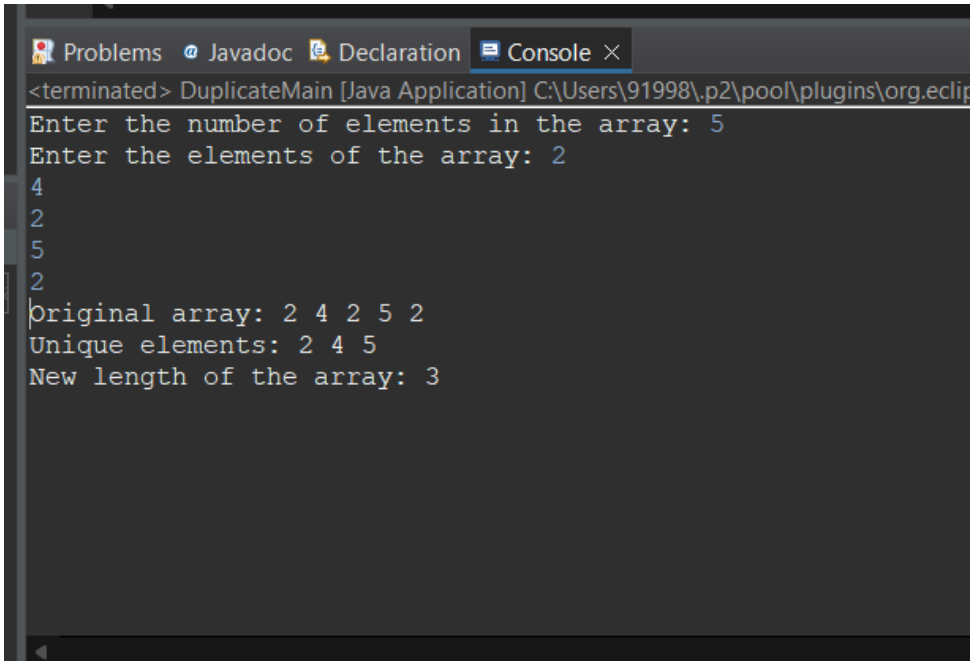
Concepts of Programming & Operating System

Total Marks: 10 Time: 1 hour

1. Write a program to read the elements into an array and print it. Remove the duplicate elements in the array and return the new length of the array and print the elements.

```
package copexam.demo;

import java.util.Scanner;

public class DuplicateMain {

public static int removeDuplicates(int[] arr) {

int newLength = arr.length;

for (int i = 0; i < newLength; i++) {

for (int j = i + 1; j < newLength; j++) {

if (arr[i] == arr[j]) {

for (int k = j; k < newLength - 1; k++) {

arr[k] = arr[k + 1];

}

newLength--;

j--;

}

}

}

System.out.print("Unique elements: ");
```

```
for (int i = 0; i < newLength; i++) {

System.out.print(arr[i] + " ");

}

System.out.println();

// Return the new length of the array

return newLength;

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the number of elements in the array: ");

int n = scanner.nextInt();

int[] arr = new int[n];

System.out.print("Enter the elements of the array: ");

for (int i = 0; i < n; i++) {

arr[i] = scanner.nextInt();

}

System.out.print("Original array: ");

for (int element : arr) {

System.out.print(element + " ");

}

System.out.println();

int newLength = removeDuplicates (arr);

System.out.println("New length of the array: " + newLength);

}

}
```



2. Write a C Program to create a child process which calculates the area of rectangle and parent process will prints the Area result after the child execution completed. Implement it using fork system call. Area = Length x Breadth.

```
#include <stdio.h>
#include <unistd.h>

int main() {
   int length, breadth;
   printf("Enter the length of the rectangle: ");
   scanf("%d", &length);
   printf("Enter the breadth of the rectangle: ");
   scanf("%d", &breadth);
   int pid = fork();
   if (pid == 0) {

      int area = length * breadth;
```

```
        printf("Area of the rectangle (calculated by child process): %d\n", area);
    } else {
        wait(NULL);
        printf("Area of the rectangle (printed by parent process): %d\n", length*breadth);
    }

    return 0;
}
```