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LAB EXAM

Concepts of Programming & Operating System

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.

```java
package com.exam;


import java.util.Scanner;

public class Array_test {
	public static int removeDuplicates(int[] arr) {
    int l = arr.length;


    for (int i = 0; i < l; i++) {
       for (int j = i + 1; j < l; j++) {
          if (arr[i] == arr[j]) {
                for (int k = j; k < l - 1; k++) {
                   arr[k] = arr[k + 1];
               }
             l--;
              j--;
          }
        }
    }
    System.out.print("Unique elements: ");
    for (int i = 0; i < l; i++) {
       System.out.print(arr[i] + " ");
    }
    System.out.println();

    // Return the new length of the array
    return l;
   }
public static void main(String[] args) {
        @SuppressWarnings("resource")
        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: ");
```

```java
        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);
    }



}
```
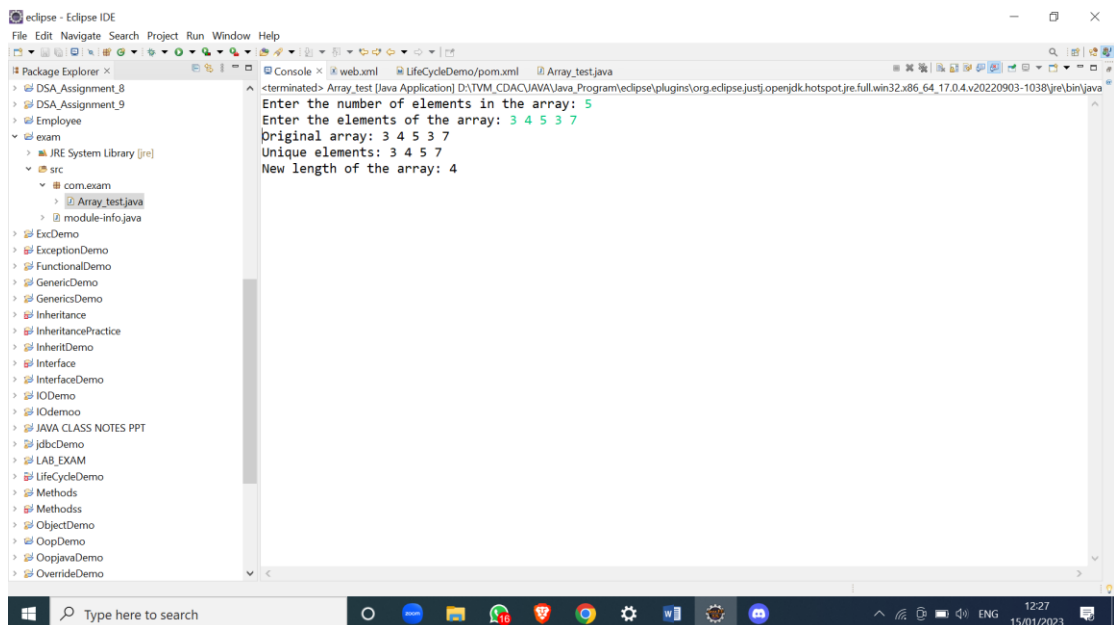


```
}
```

Q2) 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.

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

int main() {
    int area, length, breadth;
    pid_t pid;
```
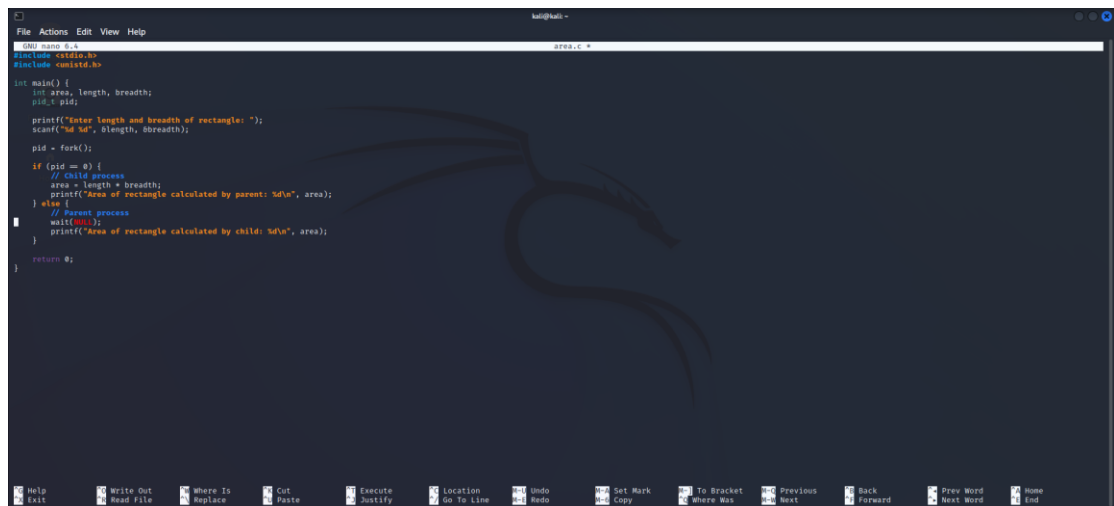
```c
printf("Enter length and breadth of rectangle: ");
scanf("%d %d", &length, &breadth);


pid = fork();


if (pid == 0) {
    // Child process
    area = length * breadth;
    printf("Area of rectangle calculated by child: %d\n", area);
} else {
    // Parent process
    wait(NULL);
    printf("Area of rectangle calculated by child: %d\n", area);
}


return 0;
}
```

```
┌──(kali㉿kali)-[~]
└─$ nano area.c

┌──(kali㉿kali)-[~]
└─$ gcc area.c -o area

┌──(kali㉿kali)-[~]
└─$ ./area
Enter length and breadth of rectangle: 30 50
Area of rectangle calculated by child: 0
Area of rectangle calculated by parent: 1500

┌──(kali㉿kali)-[~]
└─$ █
```