

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.

```
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: ");
```

```

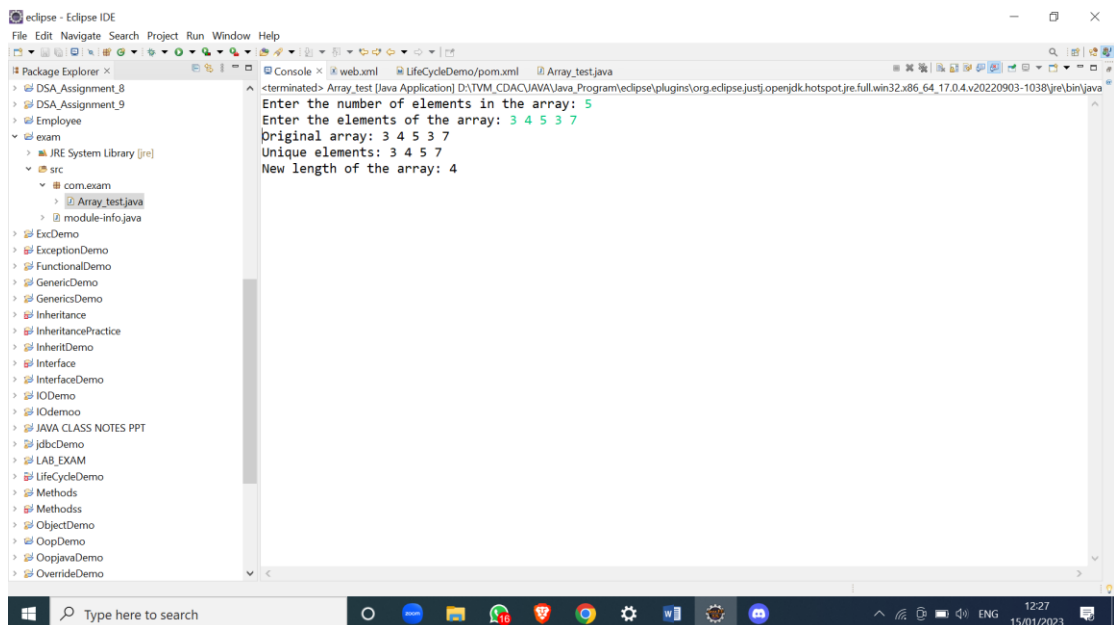
for (int i = 0; i < n; i++) {
    arr[i] = scanner.nextInt();
}

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.

```

#include <stdio.h>

```

```

#include <unistd.h>

```

```

int main() {

```

```

    int area, length, breadth;

```

```

    pid_t pid;

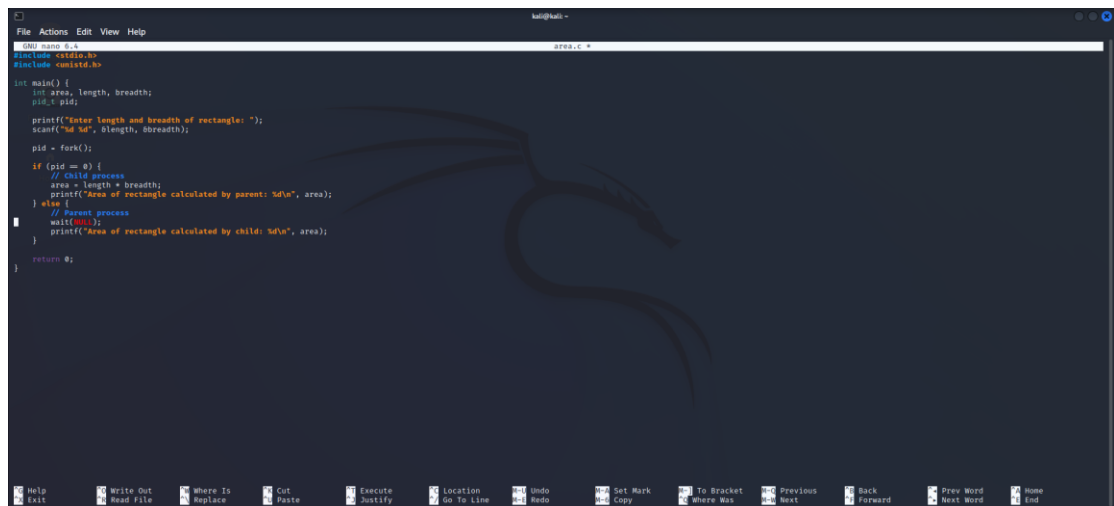
```

```
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;
}
```

A screenshot of a code editor window titled 'kati@kali: ~'. The editor displays the same C program code as shown in the previous blocks. The code is color-coded: comments are in green, strings in orange, and other code in white. A large, faint, stylized dragon logo is visible in the background of the editor. The bottom of the window features a toolbar with various icons for file operations (Exit, Write Out, Read File, Where Is, Replace, Cut, Paste), editing (Execute, Justify, Location, Go To Line), and navigation (Undo, Redo, Set Mark, Copy, To Bracket, Where Was, Previous, Next, Back, Forward, Prev Word, Next Word, Home, End).

```
File Actions Edit View Help
kali@kali: ~$
kali@kali:~$ gcc area.c
kali@kali:~$ gcc area.c -o area
kali@kali:~$ ./area
Enter length and breadth of rectangle: 10 50
Area of rectangle calculated by child: 0
Area of rectangle calculated by parent: 1500
kali@kali:~$
```