Lab Exam

Concepts of Programming &Operating System

Mangesh Pawar

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.array;
import java.util.Scanner;
public class ArrayDemo {
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);

}

}
```

Output:

```
Enter the number of elements in the array: 5
Enter the elements of the array: 12
15
45
63
45
Original array: 12 15 45 63 45
Unique elements: 12 15 45 63
New length of the array: 4
```

2. Write a C Program to create a child process which calculates the area of rectangle andparent 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();
        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;
}
```

Output: