**17. write a program to find the area and circumference of the circle.**

import java.util.Scanner;

public class Circle {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the radius of the circle: ");

double radius = input.nextDouble();

double area = Math.PI \* radius \* radius;

double circumference = 2 \* Math.PI \* radius;

System.out.println("Area of the circle: " + area);

System.out.println("Circumference of the circle: " + circumference);

System.out.println("YESHIKA KOLTE”);

System.out.println("0873CS231138”);

}

}

**Output:**

Enter the radius of the circle: 5

Area of the circle: 78.53981633974483

Circumference of the circle: 31.41592653589793

YESHIKA KOLTE

0873CS231138

**18. write a program to calculate the sum of 5 subjects and find the percentage.**

import java.util.Scanner;

public class CalculatePercentage {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter marks for five subjects:");

int subject1 = input.nextInt();

int subject2 = input.nextInt();

int subject3 = input.nextInt();

int subject4 = input.nextInt();

int subject5 = input.nextInt();

int totalMarks = subject1 + subject2 + subject3 + subject4 + subject5;

float percentage = (float) totalMarks / 500 \* 100;

System.out.println("Total Marks: " + totalMarks);

System.out.println("Percentage: " + percentage + "%");

System.out.println("YESHIKA KOLTE”);

System.out.println("0873CS231138”);

input.close();

}

}

**Output:**

Enter marks for five subjects:

80

75

90

85

95

Total Marks: 425

Percentage: 85.0%

YESHIKA KOLTE

0873CS231138

**19.WRITE A PROGRAM TO CALCULATE SIMPLE INTEREST.**

import java.util.Scanner;

public class SimpleInterest {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter principal amount: ");

double principal = input.nextDouble();

System.out.print("Enter rate of interest: ");

double rate = input.nextDouble();

System.out.print("Enter time period (in years): ");

double time = input.nextDouble();

double simpleInterest = (principal \* rate \* time) / 100;

System.out.println("Simple Interest: " + simpleInterest);

System.out.print("YESHIKA KOLTE");

System.out.print("0873CS231138 ");

input.close();

}

**OUTPUT:**

Enter principal amount: 1000

Enter rate of interest: 5

Enter time period (in years): 2

Simple Interest: 100.0

YESHIKA KOLTE

0873CS231138

**20.** **Write a program that accepts total number of days (e.g., 670 days) and displays the equivalent years, months, and days.**

import java.util.Scanner;

public class Year\_Week\_Day

{

public static void main(String args[])

{

int m, year, week, day;

Scanner s = new Scanner(System.in);

System.out.print("Enter the number of days:");

m = s.nextInt();

year = m / 365;

m = m % 365;

System.out.println("No. of years:"+year);

week = m / 7;

m = m % 7;

System.out.println("No. of weeks:"+week);

day = m;

System.out.println("No. of days:"+day);

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Enter the number of days:756

No. of years:2

No. of weeks:3

No. of days:5

YESHIKA KOLTE 0873CS231138

**21.** **Write a program to convert temperature from Fahrenheit to Celsius using the formula:**

**C = 5 \* (F - 32) / 9**

import java.util.Scanner;

public class FahrenheitToCelsius {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter temperature in Fahrenheit: ");

double fahrenheit = input.nextDouble();

double celsius = 5 \* (fahrenheit - 32) / 9;

System.out.println("Temperature in Celsius: " + celsius);

System.out.print("YESHIKA KOLTE ");

System.out.print("0873CS231138 ");

input.close();

}

}

**OUTPUT:**

Enter temperature in Fahrenheit: 68

Temperature in Celsius: 20.0

YESHIKA KOLTE

0873CS231138

22. **Write a program to swap two numbers without using a third** **variable.**

public class SwapNumbers {  
 public static void main(String[] args) {  
 int a = 10;  
 int b = 20;  
  
 System.out.println("Before swapping:");  
 System.out.println("a = " + a);  
 System.out.println("b = " + b);

a = a + b;   
 b = a - b;

a = a - b;   
 System.out.println("\nAfter swapping:");  
 System.out.println("a = " + a);  
 System.out.println("b = " + b);

System.out.println("YESHIKA KOLTE 0873CS231138”);  
 }  
}

**OUTPUT:**

Before swapping:

a = 10

b = 20

After swapping:

a = 20

b = 10

YESHIKA KOLTE 0873CS231138

23. **Write a program to reverse a given number.**

import java.util.Scanner;

public class ReverseNumber {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a number: ");

int number = scanner.nextInt();

int reversedNumber = 0;

while (number != 0) {

int digit = number % 10;

reversedNumber = reversedNumber \* 10 + digit;

number /= 10;

System.out.println("Reversed number: " + reversedNumber);

scanner.close();

System.out.println("YESHIKA KOLTE 0873CS231138")

}

}

**OUTPUT:**

Enter a number: 12345

Reversed number: 54321

YESHIKA KOLTE 0873CS231138

**24.** **In a company an employee is paid as under:**

**If his basic salary is less than Rs. 1500, then HRA = 10% of basic salary and DA = 90% of basic salary.**

**If his salary is either equal to or above Rs. 1500, then HRA Rs. 500 and DA = 98% of basic salary.**

**If the employee's salary is input by the user write a program to find his gross salary. GS=Basic+DA+HRA**

import java.util.Scanner;

public class GrossSalaryCalculator {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the employee's basic salary: ");

double basicSalary = scanner.nextDouble();

double hra, da;

if (basicSalary < 1500) {

hra = 0.10 \* basicSalary;

da = 0.90 \* basicSalary;

} else {

hra = 500;

da = 0.98 \* basicSalary;

}

double grossSalary = basicSalary + hra + da;

System.out.println("Gross Salary: " + grossSalary);

System.out.println("YESHIKA KOLTE 0873CS231138”);

scanner.close();

}

}

**OUTPUT:**

Enter the employee's basic salary: 600000

Gross Salary: 1188500.0

YESHIKA KOLTE 0873CS231138

**25.** **Program to find greatest in 3 numbers.**

import java.util.Scanner;

public class GreatestOfThree {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter three numbers:");

int num1 = scanner.nextInt();

int num2 = scanner.nextInt();

int num3 = scanner.nextInt();

int greatest;

if (num1 >= num2 && num1 >= num3) {

greatest= num1;

} else if (num2 >= num1 && num2 >= num3) {

greatest = num2;

} else {

greatest = num3;

}

System.out.println("The greatest number is: " + greatest);

System.out.println(“YESHIKA KOLTE 0873CS231138”);

scanner.close();

}

}

**OUTPUT:**

Enter three numbers:

10

25

8

The greatest number is: 25

YESHIKA KOLTE 0873CS231138

**26. Program to check that entered year is leap year or not.**

import java.util.Scanner;

public class LeapYearChecker {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a year: ");

int year = scanner.nextInt();

boolean isLeap = false;

if (year % 4 == 0) {

if (year % 100 == 0) {

if (year % 400 == 0) {

isLeap = true;

}

} else {

isLeap = true;

}

}

if (isLeap) {

System.out.println(year + " is a leap year.");

} else {

System.out.println(year + " is not a leap year.");

System.out.println(“YESHIKA KOLTE 0873CS231138”)

} scanner.close();

}

}

**OUTPUT:**

Enter a year: 2024

2024 is a leap year.

YESHIKA KOLTE 0873CS231138

**27.** **Accept person age(int), gender(int 1 for male and 0 for female), then check whether person is eligible for marriage or not.**

import java.util.Scanner;

public class MarriageEligibility {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter age: ");

int age = sc.nextInt();

System.out.print("Enter gender (1 for male, 0 for female): ");

int gender = sc.nextInt();

if (gender == 1) {

if (age >= 21) {

System.out.println("Male is eligible for marriage.");

} else {

System.out.println("Male is NOT eligible for marriage.");

}

} else if (gender == 0) {

if (age >= 18) {

System.out.println("Female is eligible for marriage.");

} else {

System.out.println("Female is NOT eligible for marriage.");

}

} else {

System.out.println("Invalid gender input.");

} System.out.println(“YESHIKA KOLTE 0873CS231138”);

sc.close();

}

}

**OUTPUT:**

Enter age: 25

Enter gender (1 for male, 0 for female): 1

Male is eligible for marriage.

YESHIKA KOLTE 0873CS231138

**28. Program to print a table of any number.**

import java.util.Scanner;

public class MultiplicationTable {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the number for the multiplication table: ");

int number = input.nextInt();

System.out.println("Multiplication Table of " + number + ":");

for (int i = 1; i <= 10; i++) {

System.out.println(number + " x " + i + " = " + (number \* i));

System.out.print("YESHIKA KOLTE 0873CS231138 ");

}

input.close();

}

**OUTPUT:**

Enter the number for the multiplication table: 5

Multiplication Table of 5:

5 x 1 = 5

5 x 2 = 10

5 x 3 = 15

5 x 4 = 20

5 x 5 = 25

5 x 6 = 30

5 x 7 = 35

5 x 8 = 40

5 x 9 = 45

5 x 10 = 50

YESHIKA KOLTE 0873CS231138

**29. Program to check whether number is prime or not**

import java.util.Scanner;

public class PrimeChecker {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a number: ");

System.out.print("YESHIKA KOLTE 0873CS231138 ");

int number = scanner.nextInt();

scanner.close();

if (isPrime(number)) {

System.out.println(number + " is a prime number.");

} else {

System.out.println(number + " is not a prime number.");

}

}

public static boolean isPrime(int n) {

if (n <= 1) {

return false;

}

for (int i = 2; i <= Math.sqrt(n); i++) {

if (n % i == 0) {

return false;

}

}

return true;

}}

**OUTPUT:**

YESHIKA KOLTE 0873CS231138

Enter a number: 17

17 is a prime number.

**30. Calculate series: 12+2+3+4+.......+n²**

import java.util.Scanner;

public class SumOfSeries {

public static void main(String[] args) {

System.out.println(“YESHIKA KOLTE 0873CS231138”);

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the value of n: ");

int n = scanner.nextInt();

int sum = 0;

for (int i = 1; i <= n; i++) {

sum += i;

}

System.out.println("Sum of the series: " + sum);

scanner.close();

}

}

**OUTPUT:**

YESHIKA KOLTE 0873CS231138

Enter the value of n: 9

Sum of the series: 45

**31. Calculate sum of Lucas series (up to 10 terms): 1, 2, 3, 6, 11, 20**

public class LucasSum {

public static void main(String[] args) {

int n = 10;

int sum = 0;

int first = 2, second = 1;

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

if(i == 0){

sum += first;

continue;

}

if(i == 1){

sum += second;

continue; }

int next = first + second;

sum += next;

first = second;

second = next;

}

System.out.println("Sum of the first " + n + " terms of the Lucas series: " + sum);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}}

**OUTPUT:**

Sum of the first 10 terms of the Lucas series: 199

YESHIKA KOLTE 0873CS231138

**32. . Print all prime numbers between two given numbers.**

import java.util.Scanner;

public class PrimeNumbers {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("YESHIKA KOLTE 0873CS231138 ");

System.out.print("Enter the first number: ");

int num1 = scanner.nextInt();

System.out.print("Enter the second number: ");

int num2 = scanner.nextInt();

scanner.close();

System.out.println("Prime numbers between " + num1 + " and " + num2 + " are:");

printPrimes(num1, num2);

}

public static void printPrimes(int start, int end) {

for (int i = start; i <= end; i++) {

if (isPrime(i)) {

System.out.println(i);

} } }

public static boolean isPrime(int num) {

if (num <= 1) {

return false; }

for (int i = 2; i <= Math.sqrt(num); i++) {

if (num % i == 0) {

return false;

} } return true;}}

**OUTPUT:**

YESHIKA KOLTE 0873CS231138

Enter the first number: 1

Enter the second number: 50

Prime numbers between 1 and 50 are:

2

3

5

7

11

13

17

19

23

29

31

37

41

43

47

**33. Program to show sum and average of 10 element array. Accept array elements from user.**

import java.util.Scanner;

public class ArraySumAverage {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

int[] numbers = new int[10];

int sum = 0;

System.out.println("Enter 10 numbers:");

for (int i = 0; i < 10; i++) {

System.out.print("Enter number " + (i + 1) + ": ");

numbers[i] = scanner.nextInt();

sum += numbers[i];

}

double average = (double) sum / 10;

System.out.println("Sum of the numbers: " + sum);

System.out.println("Average of the numbers: " + average);

System.out.println("YESHIKA KOLTE 0873CS231138");

scanner.close();

}

}

**OUTPUT:**

Enter 10 numbers:

Enter number 1: 10

Enter number 2: 20

Enter number 3: 30

Enter number 4: 40

Enter number 5: 50

Enter number 6: 60

Enter number 7: 70

Enter number 8: 80

Enter number 9: 90

Enter number 10: 100

Sum of the numbers: 550

Average of the numbers: 55.0

YESHIKA KOLTE 0873CS231138

**34. Sort a ten element array in descending order.**

import java.util.Arrays;

import java.util.Collections;

public class SortArrayDescending {

public static void main(String[] args) {

Integer[] arr = {5, 2, 8, 1, 9, 4, 7, 3, 6, 10};

Arrays.sort(arr, Collections.reverseOrder());

System.out.println("Sorted array in descending order:");

for (int num : arr) {

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

System.out.println("YESHIKA KOLTE 0873CS231138");

}}}

**OUTPUT:**

Sorted array in descending order:

10 9 8 7 6 5 4 3 2 1

YESHIKA KOLTE 0873CS231138

**35. Create a array of 17 elements in 5 rows. And calculate sum of all elements.**

public class ArraySum {

public static void main(String[] args) {

int[][] array = new int[5][];

int count = 1;

array[0] = new int[4];

array[1] = new int[4];

array[2] = new int[3];

array[3] = new int[3];

array[4] = new int[3];

int sum = 0;

for (int i = 0; i < array.length; i++) {

for (int j = 0; j < array[i].length; j++) {

array[i][j] = count++;

sum += array[i][j];

} }

System.out.println("Array Elements:");

for (int i = 0; i < array.length; i++) {

for (int j = 0; j < array[i].length; j++) {

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

}

System.out.println(); }

System.out.println("Sum of all elements: " + sum);

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Array Elements:

1 2 3 4

5 6 7 8

9 10 11

12 13 14

15 16 17

Sum of all elements: 153

YESHIKA KOLTE 0873CS231138

**36. Program to find multiplication of two 3X3 matrices.**

public class MatrixMultiplication {

public static void main(String[] args) {

int[][] matrixA = {

{1, 2, 3},

{4, 5, 6},

{7, 8, 9}

};

int[][] matrixB = {

{9, 8, 7},

{6, 5, 4},

{3, 2, 1}

};

int[][] resultMatrix = multiplyMatrices(matrixA, matrixB);

System.out.println("Matrix A:");

printMatrix(matrixA);

System.out.println("\nMatrix B:");

printMatrix(matrixB);

System.out.println("\nResult Matrix (A \* B):");

printMatrix(resultMatrix);

}

public static int[][] multiplyMatrices(int[][] matrixA, int[][] matrixB) {

int rowsA = matrixA.length;

int colsA = matrixA[0].length;

int colsB = matrixB[0].length;

int[][] result = new int[rowsA][colsB];

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

for (int j = 0; j < colsB; j++) {

for (int k = 0; k < colsA; k++) {

result[i][j] += matrixA[i][k] \* matrixB[k][j];

}

}

}

return result;

}

public static void printMatrix(int[][] matrix) {

for (int[] row : matrix) {

for (int element : row) {

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

}

System.out.println();

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}

}

}

**OUTPUT:**

Matrix A:

1 2 3

4 5 6

7 8 9

Matrix B:

9 8 7

6 5 4

3 2 1

Result Matrix (A \* B):

30 24 18

84 69 54

138 114 90

YESHIKA KOLTE 0873CS231138

**37. . Program to print transpose of a matrix.**

import java.util.Scanner;

public class MatrixTranspose {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the number of rows: ");

int rows = scanner.nextInt();

System.out.print("Enter the number of columns: ");

int cols = scanneredge.nextInt();

int[][] matrix = new int[rows][cols];

System.out.println("Enter the elements of the matrix:");

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

for (int j = 0; j < cols; j++) {

matrix[i][j] = scanner.nextInt();

}}

System.out.println("Original matrix:");

printMatrix(matrix);

int[][] transpose = new int[cols][rows];

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

for (int j = 0; j < cols; j++) {

transpose[j][i] = matrix[i][j];

}}

System.out.println("Transpose matrix:");

printMatrix(transpose);

scanner.close();

}

public static void printMatrix(int[][] matrix) {

for (int[] row : matrix) {

for (int element : row) {

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

}

System.out.println();

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}}}

**OUTPUT:**

Enter the number of rows: 3

Enter the number of columns: 2

Enter the elements of the matrix:

1 2

3 4

5 6

Original matrix:

1 2

3 4

5 6

Transpose matrix:

1 3 5

2 4 6

YESHIKA KOLTE 0873CS231138

**38. Write a Java program to create an ArrayList, add some colors (as strings), and print the collection.**

import java.util.ArrayList;

public class ColorsList {

public static void main(String[] args) {

ArrayList<String> colors = new ArrayList<>();

colors.add("Red");

colors.add("Green");

colors.add("Blue");

colors.add("Yellow");

colors.add("Black");

System.out.println("Colors in the list: " + colors);

System.out.println("YESHIKA KOLTE 0873CS231138);

}

}

**OUTPUT:**

Colors in the list: [Red, Green, Blue, Yellow, Black]

YESHIKA KOLTE 0873CS231138

**39. Write a Java program to iterate through all elements in an ArrayList.**

import java.util.ArrayList;

import java.util.Iterator;

public class IterateArrayList {

public static void main(String[] args) {

ArrayList<String> names = new ArrayList<>();

names.add("Alice");

names.add("Bob");

names.add("Charlie");

names.add("David");

System.out.println(Using a for loop");

for (int i = 0; i < names.size(); i++) {

System.out.println(names.get(i));

}

System.out.println();

System.out.println(“YESHIKA KOLTE 0873CS231138”)

}

}

**OUTPUT:**

Using a for loop

Alice  
Bob  
Charlie  
David

YESHIKA KOLTE 0873CS231138

**40. write a Java program to insert an element into the ArrayList at the first position**

import java.util.ArrayList;

public class InsertElementAtFirst {

public static void main(String[] args) {

ArrayList<String> arrayList = new ArrayList<>();

arrayList.add("Element 1");

arrayList.add("Element 2");

arrayList.add("Element 3");

System.out.println("Original ArrayList: " + arrayList);

arrayList.add(0, "New Element");

System.out.println("Modified ArrayList: " + arrayList);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**Output:**

Original ArrayList: [Element 1, Element 2, Element 3]

Modified ArrayList: [New Element, Element 1, Element 2, Element 3]

YESHIKA KOLTE 0873CS231138

**41. Write a Java program to retrieve an element at a specified index from a given ArrayList**

import java.util.ArrayList;

public class RetrieveElement {

public static void main(String[] args) {

ArrayList<String> arrayList = new ArrayList<>();

arrayList.add("Apple");

arrayList.add("Banana");

arrayList.add("Cherry");

arrayList.add("Date");

int index = 2;

if (index >= 0 && index < arrayList.size()) {

String element = arrayList.get(index);

System.out.println("Element at index " + index + ": " + element);

} else {

System.out.println("Invalid index: " + index);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

}

**OUTPUT:**

Element at index 2: Cherry

YESHIKA KOLTE 0873CS231138

**42. Write a Java program to update an ArrayList element by a given element**

import java.util.ArrayList;

import java.util.List;

public class UpdateArrayListElement {

public static void main(String[] args) {

List<String> myArrayList = new ArrayList<>();

myArrayList.add("Apple");

myArrayList.add("Banana");

myArrayList.add("Cherry");

myArrayList.add("Date");

String oldElement = "Banana";

String newElement = "Mango";

int index = myArrayList.indexOf(oldElement);

if (index != -1) {

myArrayList.set(index, newElement);

System.out.println("ArrayList after update: " + myArrayList);

} else {

System.out.println("Element '" + oldElement + "' not found in the ArrayList.");

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}}}

**OUTPUT:**

ArrayList after update: [Apple, Mango, Cherry, Date]

YESHIKA KOLTE 0873CS231138

**43. Write a Java program to remove the third element from an ArrayList.**

import java.util.ArrayList;

public class RemoveThirdElement {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<>();

list.add("Element 1");

list.add("Element 2");

list.add("Element 3");

list.add("Element 4");

list.add("Element 5");

System.out.println("Original List: " + list);

if (list.size() > 2) {

list.remove(2);

System.out.println("List after removing third element: " + list);

} else {

System.out.println("List does not have a third element.");

System.out.println("YESHIKA KOLTE 0873CS231138");

}}}

**OUTPUT:**

Original List: [Element 1, Element 2, Element 3, Element 4, Element 5]

List after removing third element: [Element 1, Element 2, Element 4, Element 5]

YESHIKA KOLTE 0873CS231138

**44. Write a Java program to search for an element in an ArrayList**.

import java.util.ArrayList;

public class ArrayListSearch {

public static void main(String[] args) {

ArrayList<String> names = new ArrayList<>();

names.add("Alice");

names.add("Bob");

names.add("Charlie");

names.add("David");

String searchName = "Bob";

int index = names.indexOf(searchName);

if (index != -1) {

System.out.println("Element '" + searchName + "' found at index: " + index);

} else {

System.out.println("Element '" + searchName + "' not found in the list."); }

searchName = "Eve";

index = names.indexOf(searchName);

if (index != -1) {

System.out.println("Element '" + searchName + "' found at index: " + index);

} else {

System.out.println("Element '" + searchName + "' not found in the list.");

System.out.println("YESHIKA KOLTE 0873CS231138");}}}

**OUTPUT:**

Element 'Bob' found at index: 1

Element 'Eve' not found in the list.

YESHIKA KOLTE 0873CS231138

**45. . Write a Java program to sort a given ArrayList.**

import java.util.ArrayList;

import java.util.Collections;

public class SortArrayList {

public static void main(String[] args) {

ArrayList<Integer> numbers = new ArrayList<>();

numbers.add(5);

numbers.add(2);

numbers.add(8);

numbers.add(1);

numbers.add(9);

System.out.println("Original ArrayList: " + numbers);

Collections.sort(numbers);

System.out.println("Sorted ArrayList: " + numbers);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [5, 2, 8, 1, 9]

Sorted ArrayList: [1, 2, 5, 8, 9]

YESHIKA KOLTE 0873CS231138

**46: Write a Java program to copy one array list into another.**

import java.util.ArrayList;

import java.util.List;

public class CopyArrayList {

public static void main(String[] args) {

ArrayList<String> originalList = new ArrayList<>();

originalList.add("Apple");

originalList.add("Banana");

originalList.add("Cherry");

ArrayList<String> copiedList1 = new ArrayList<>(originalList);

System.out.println("Original List: " + originalList);

System.out.println("Copied List (Constructor): " + copiedList1);

System.out.println("Copied List (addAll()): " + copiedList2);

System.out.println("Copied List (clone()): " + copiedList3);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original List: [Apple, Banana, Cherry]

Copied List (Constructor): [Apple, Banana, Cherry]

Copied List (addAll()): [Apple, Banana, Cherry]

Copied List (clone()): [Apple, Banana, Cherry]

YESHIKA KOLTE 0873CS231138

**47.** **Write a Java program to shuffle elements in an array list.**

import java.util.ArrayList;

import java.util.Collections;

public class ShuffleArrayList {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<String>();

list.add("Apple");

list.add("Banana");

list.add("Cherry");

list.add("Mango");

list.add("Orange");

System.out.println("Original List:");

System.out.println(list);

Collections.shuffle(list);

System.out.println("\nShuffled List:");

System.out.println(list);

System.out.println(“YESHIKA KOLTE 0873CS231138”); }

}

**OUTPUT:**

Original List:

[Apple, Banana, Cherry, Mango, Orange]

Shuffled List:

[Cherry, Orange, Apple, Banana, Mango]

YESHIKA KOLTE 0873CS231138

48. **Write a Java program to reverse elements in an array list.**

import java.util.ArrayList;

import java.util.Collections;

public class ReverseArrayList {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<>();

list.add("Apple");

list.add("Banana");

list.add("Cherry");

list.add("Mango");

System.out.println("Original ArrayList: " + list);

Collections.reverse(list);

System.out.println("Reversed ArrayList: " + list);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [Apple, Banana, Cherry, Mango]

Reversed ArrayList: [Mango, Cherry, Banana, Apple]

YESHIKA KOLTE 0873CS231138

**49. Write a Java program to extract a portion of an array list.**

import java.util.ArrayList;

import java.util.List;

public class ExtractArrayListPortion {

public static void main(String[] args) {

ArrayList<String> colors = new ArrayList<>();

colors.add("Red");

colors.add("Green");

colors.add("Blue");

colors.add("Yellow");

colors.add("Purple");

System.out.println("Original ArrayList: " + colors);

List<String> subList = colors.subList(1, 4);

System.out.println("Extracted Portion: " + subList);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [Red, Green, Blue, Yellow, Purple]

Extracted Portion: [Green, Blue, Yellow]

YESHIKA KOLTE 0873CS231138

**50. Write a Java program to compare two array lists.**

import java.util.ArrayList;

public class CompareArrayLists {

public static void main(String[] args) {

ArrayList<String> list1 = new ArrayList<>();

list1.add("Apple");

list1.add("Banana");

list1.add("Cherry");

ArrayList<String> list2 = new ArrayList<>();

list2.add("Banana");

list2.add("Cherry");

list2.add("Apple");

boolean areEqual = list1.equals(list2);

System.out.println("Are both ArrayLists equal? " + areEqual);

ArrayList<String> common = new ArrayList<>(list1);

common.retainAll(list2);

System.out.println("Common elements: " + common);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Are both ArrayLists equal? false

Common elements: [Apple, Banana, Cherry]

YESHIKA KOLTE 0873CS231138

**51. Write a Java program that swaps two elements in an array list.**

import java.util.ArrayList;

import java.util.Collections;

public class SwapArrayListElements {

public static void main(String[] args) {

ArrayList<String> fruits = new ArrayList<>();

fruits.add("Apple");

fruits.add("Banana");

fruits.add("Cherry");

fruits.add("Mango");

System.out.println("Original ArrayList: " + fruits);

Collections.swap(fruits, 1, 3);

System.out.println("ArrayList after swapping index 1 and 3: " + fruits);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [Apple, Banana, Cherry, Mango]

ArrayList after swapping index 1 and 3: [Apple, Mango, Cherry, Banana]

YESHIKA KOLTE 0873CS231138

**52. Write a Java program to join two array lists.**

import java.util.ArrayList;

public class JoinArrayLists {

public static void main(String[] args) {

ArrayList<String> list1 = new ArrayList<>();

list1.add("Red");

list1.add("Green");

list1.add("Blue");

ArrayList<String> list2 = new ArrayList<>();

list2.add("Yellow");

list2.add("Purple");

System.out.println("First ArrayList: " + list1);

System.out.println("Second ArrayList: " + list2);

ArrayList<String> joinedList = new ArrayList<>(list1);

joinedList.addAll(list2);

System.out.println("Joined ArrayList: " + joinedList);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

First ArrayList: [Red, Green, Blue]

Second ArrayList: [Yellow, Purple]

Joined ArrayList: [Red, Green, Blue, Yellow, Purple]

YESHIKA KOLTE 0873CS231138

**53. Write a Java program to clone an array list to another array list**.

import java.util.ArrayList;

public class CloneArrayListExample {

public static void main(String[] args) {

ArrayList<String> originalList = new ArrayList<>();

originalList.add("Apple");

originalList.add("Banana");

originalList.add("Mango");

originalList.add("Orange");

ArrayList<String> clonedList = (ArrayList<String>) originalList.clone();

System.out.println("Original ArrayList: " + originalList);

System.out.println("Cloned ArrayList: " + clonedList);

System.out.println("YESHIKA KOLTE 0873CS231138”); }

}

**OUTPUT:**

Original ArrayList: [Apple, Banana, Mango, Orange]

Cloned ArrayList: [Apple, Banana, Mango, Orange]

YESHIKA KOLTE 0873CS231138

**54. Write a Java program to empty an array list.**

import java.util.ArrayList;

public class EmptyArrayListExample {

public static void main(String[] args) {

ArrayList<String> fruits = new ArrayList<>();

fruits.add("Apple");

fruits.add("Banana");

fruits.add("Mango");

fruits.add("Orange");

System.out.println("Original ArrayList: " + fruits);

fruits.clear();

System.out.println("ArrayList after emptying: " + fruits);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [Apple, Banana, Mango, Orange]

ArrayList after emptying: []

YESHIKA KOLTE 0873CS231138

**55. . Write a Java program to test whether an array list is empty or not.**

import java.util.ArrayList;

public class CheckEmptyArrayList {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<>();

if (list.isEmpty()) {

System.out.println("The ArrayList is empty.");

} else {

System.out.println("The ArrayList is not empty.");

}

list.add("Java");

list.add("Python");

if (list.isEmpty()) {

System.out.println("The ArrayList is empty.");

} else {

System.out.println("The ArrayList is not empty.");

System.out.printl(“YESHIKA KOLTE 0873CS23138");

}}}

**OUTPUT:**

The ArrayList is empty.

The ArrayList is not empty.

YESHIKA KOLTE 0873CS231138

**56. Write a Java program for trimming the capacity of an array list.**

import java.util.ArrayList;

public class TrimArrayListCapacity {

public static void main(String[] args) {

ArrayList<String> cities = new ArrayList<>();

cities.add("Delhi");

cities.add("Mumbai");

cities.add("Chennai");

cities.add("Kolkata");

System.out.println("ArrayList before trimming: " + cities);

cities.trimToSize();

System.out.println("ArrayList after trimming: " + cities);

System.out.println("YESHIKA KOLTE 0873CS231138" );

}

}

**OUTPUT:**

ArrayList before trimming: [Delhi, Mumbai, Chennai, Kolkata]

ArrayList after trimming: [Delhi, Mumbai, Chennai, Kolkata]

YESHIKA KOLTE 0873CS231138

**57. Write a Java program to increase an array list size.**

import java.util.ArrayList;

public class IncreaseArrayListSize {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<>();

list.add("Apple");

list.add("Banana");

list.add("Cherry");

System.out.println("Initial ArrayList: " + list);

System.out.println("Initial size: " + list.size());

list.ensureCapacity(20);

list.add("Date");

list.add("Elderberry");

list.add("Fig");

list.add("Grapes");

System.out.println("Updated ArrayList: " + list);

System.out.println("Updated size: " + list.size());

System.out.println("YESHIKA KOLTE 0873CS231138”; }

}

**OUTPUT:**

Initial ArrayList: [Apple, Banana, Cherry]

Initial size: 3

Updated ArrayList: [Apple, Banana, Cherry, Date, Elderberry, Fig, Grapes]

Updated size**:** 7

YESHIKA KOLTE 0873CS231138

**58. Write a Java program to replace the second element of an ArrayList with the specified element.**

import java.util.ArrayList;

public class ReplaceSecondElement {

public static void main(String[] args) {

ArrayList<String> colors = new ArrayList<>();

colors.add("Red");

colors.add("Green");

colors.add("Blue");

colors.add("Yellow");

System.out.println("Original ArrayList: " + colors);

colors.set(1, "Black");

System.out.println("Updated ArrayList after replacing second element: " + colors);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original ArrayList: [Red, Green, Blue, Yellow]

Updated ArrayList after replacing second element: [Red, Black, Blue, Yellow]

YESHIKA KOLTE 0873CS231138

**59. Write a Java program to print all the elements of an ArrayList using the elements' position.**

import java.util.ArrayList;

public class PrintElementsByPosition {

public static void main(String[] args) {

ArrayList<String> fruits = new ArrayList<>();

fruits.add("Apple");

fruits.add("Banana");

fruits.add("Cherry");

fruits.add("Date");

System.out.println("Elements of ArrayList using position:");

for (int i = 0; i < fruits.size(); i++) {

System.out.println("Element at index " + i + ": " + fruits.get(i));

System.out.println(“ YESHIKA KOLTE 0873CS231138”);

}}}

**OUTPUT:**

Elements of ArrayList using position:

Element at index 0: Apple

Element at index 1: Banana

Element at index 2: Cherry

Element at index 3: Date

YESHIKA KOLTE 0873CS231138

**60. Write a Java program to append a specified element to the end of a linked list.**

import java.util.LinkedList;

public class AppendToLinkedList {

public static void main(String[] args) {

LinkedList<String> animals = new LinkedList<>();

animals.add("Dog");

animals.add("Cat");

animals.add("Horse");

System.out.println("Original LinkedList: " + animals);

animals.add("Elephant");

System.out.println("Updated LinkedList after appending: " + animals);

System.out.println("YESHIKA KOLTE 0873CS231138”);

}

}

**OUTPUT:**

Original LinkedList: [Dog, Cat, Horse]

Updated LinkedList after appending: [Dog, Cat, Horse, Elephant]

YESHIKA KOLTE 0873CS231138

**61. . Write a Java program** **import java.util.LinkedList;**

import java.util.Iterator;

public class IterateLinkedList {

public static void main(String[] args) {

LinkedList<String> cities = new LinkedList<>();

cities.add("Mumbai");

cities.add("Delhi");

cities.add("Bangalore");

cities.add("Chennai");

System.out.println("\nIterating using Iterator:");

Iterator<String> iterator = cities.iterator();

while (iterator.hasNext()) {

System.out.println(iterator.next());

System.out.println(“YESHIKA KOLTE 0873CS231138”);}}}

**OUTPUT:**

Iterating using Iterator:

Mumbai

Delhi

Bangalore

Chennai

YESHIKA KOLTE 0873CS231138

**62. Write a Java program to iterate through all elements starting from a specified position in a linked list**.

import java.util.LinkedList;

public class IterateFromPosition {

public static void main(String[] args) {

LinkedList<String> languages = new LinkedList<>();

languages.add("Java");

languages.add("Python");

languages.add("C++");

languages.add("JavaScript");

languages.add("Ruby");

System.out.println("Complete LinkedList: " + languages);

int startIndex = 2;

System.out.println("\nIterating from index " + startIndex + ":");

for (int i = startIndex; i < languages.size(); i++) {

System.out.println("Element at index " + i + ": " + languages.get(i));

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}}}

**OUTPUT:**

Complete LinkedList: [Java, Python, C++, JavaScript, Ruby]

Iterating from index 2:

Element at index 2: C++

Element at index 3: JavaScript

Element at index 4: Ruby

YESHIKA KOLTE 0873CS231138

**63. Write a Java program to iterate a linked list in reverse order.**

import java.util.LinkedList;

import java.util.Iterator;

public class ReverseIterateLinkedList {

public static void main(String[] args)

LinkedList<String> colors = new LinkedList<>();

colors.add("Red");

colors.add("Green");

colors.add("Blue");

colors.add("Yellow");

System.out.println("Original LinkedList: " + colors);

System.out.println("\nIterating LinkedList in reverse order:");

Iterator<String> reverseIterator = colors.descendingIterator();

while (reverseIterator.hasNext()) {

System.out.println(reverseIterator.next());

System.out.println(“YESHIKA KOLTE 0873CS231138”);

}}}

**OUTPUT:**

Original LinkedList: [Red, Green, Blue, Yellow]

Iterating LinkedList in reverse order:

Yellow

Blue

Green

Red

YESHIKA KOLTE 0873CS231138