# FINAL-TERM

**(CLO\_1): (Cognitive Level C2, GA\_1, i.e., Basic Problem Solving)**

Q1. List answers to the following questions:

* 1. Write a small introduction to arrays.
  2. What are the uses of an array.

**Answer:**

**a):**

Arrays:

Arrays are fundamental structures in Java that allow us to store multiple values of the same type in a single variable.

**b):**

Uses of an array:

1. They allow us to store multiple elements of the same type in a single array. This is useful when we need to store large amounts of data and process them efficiently.
2. Arrays are also used for sorting, searching, accessing, and manipulating data.
3. Also, arrays provide various advantages such as memory efficiency, better performance, and faster execution time.
4. They can also be used to implement multi-dimensional arrays, which are useful for representing matrices and graphs.

**(CLO\_2): (Cognitive Level C3, GA2, i.e., Applying basic programming)**

Q2. Identify a program to find the largest integer value in an integer array. The integer value and the integer array both will be entered by the user.

**Answer:**

import java.util.Scanner;

public class Array {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter Size Of Array: ");

int n = sc.nextInt();

if(n <= 0){

System.out.println("Invalid array size. Please enter a positive integer.");

return;

}

int[] arr = new int[n];

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

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

arr[i] = sc.nextInt();

}

int largest = arr[0];

for(int i = 1; i < arr.length; i++){

if(arr[i] > largest){

largest = arr[i];

}

}

System.out.println("The Largest Integer In The Array Is: " + largest);

}

}

**(CLO\_3): (Cognitive Level C3, GA3, i.e., Implement algorithms)**

Q3. Implement an enum datatype of all the months in a year. Let the user enter a month. Your program will then check if that month entered by the user exists in the enum list or not. Print the messages accordingly.

**Answer:**

**Enum Class Code:**

public enum Months {

JANUARY, FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER;

}

**Main Class Code:**

import java.util.Scanner;

public class CheckMonth {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a month name: ");

String inputMonth = sc.next().toUpperCase();

boolean found = false;

for (Months month : Months.values()) {

if (month.name().equals(inputMonth)) {

found = true;

break;

}

}

if (found){

System.out.println("The month exists in the enum list");

} else{

System.out.println("The month doesn't exists in the enum list");

}

}

}

**(CLO\_3): (Cognitive Level C3, GA3, i.e., Implement algorithms)**

Q4. Implement programs for the following:

1. Ask the user to enter string values of animals in a vector.
2. Print the string values of animals in the vector using the iterator class.
3. Delete all the vector elements from a vector using two methods.
4. Find “Zebra” in the Vector.
5. Replace “Dog” with “Giraffe”.

**Answer:**

**a):**

import java.util.Vector;

import java.util.Scanner;

public class AnimalVector {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int numberOfAnimals;

System.out.print("How many animals do you want to enter? ");

numberOfAnimals = sc.nextInt();

System.out.println("Enter the names of the animals:");

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

String animal = sc.next();

animals.add(animal);

}

System.out.println("Animals entered: " + animals);

}

}

**b):**

import java.util.Vector;

import java.util.Iterator;

public class AnimalVector {

public static void main(String[] args) {

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

animals.add("Lion");

animals.add("Dog");

animals.add("Tiger");

animals.add("Zebra");

animals.add("Elephant");

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

System.out.println("Animals in the vector:");

while (iterator.hasNext()) {

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

}

}

}

**c):**

import java.util.Vector;

public class AnimalVector {

public static void main(String[] args) {

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

animals.add("Lion");

animals.add("Dog");

animals.add("Tiger");

animals.clear();

System.out.println("Animals after using clear(): " + animals);

animals.add("Lion");

animals.add("Tiger");

animals.add("Bear");

animals.removeAll(animals);

System.out.println("Animals after using removeAll(): " + animals);

}

}

**d):**

import java.util.Vector;

public class AnimalVector {

public static void main(String[] args) {

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

animals.add("Lion");

animals.add("Dog");

animals.add("Zebra");

if (animals.contains("Zebra")) {

System.out.println("Zebra is found in the vector.");

} else {

System.out.println("Zebra is not found in the vector.");

}

}

}

**e):**

import java.util.Vector;

public class AnimalVector {

public static void main(String[] args) {

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

animals.add("Lion");

animals.add("Dog");

animals.add("Tiger");

animals.add("Zebra");

animals.add("Elephant");

System.out.println("Animals before replacement: " + animals);

if (animals.contains("Dog")) {

int index\_found = animals.indexOf("Dog");

animals.set(index\_found, "Giraffe");

}

System.out.println("Animals after replacement: " + animals);

}

}

**(CLO\_2): (Cognitive Level C3, GA\_2, i.e., Applying basic programming)**

Q5. Identify the output of the following programs:

|  |  |
| --- | --- |
| **a)**  public class final {  public static void main (String args[])  {  String str=”JAVA”;  char ch1 =str.charAt(2);  char ch2 =str.charAt(3);  System.out.println(ch1);  System.out.println(ch2);  }  } | **b)**  public class final {  public static void main (String args[])  {  int[] myArray = {2, 4, 6, 8, 10};  int[] otherArray={0,0,0,0,0};  for (int i=0; i<4; i++)  {  otherArray[i]=myArray[i] \* myArray[i];  System.out.println(“The number” + i+1+ otherArray[i]);  }  }  } |

**Answer:**

**a):**

V

A

**b):**

The number014

The number1116

The number2136

The number3164

**(CLO\_2): (Cognitive Level C3, GA\_2, i.e., Applying basic programming)**

Q6. Identify the errors in the following programs:

|  |  |
| --- | --- |
| **a)**  public enum Planets{  Jupiter (500),  Saturn(3000),  Mars(2500);  int lightYears;  Planets (int lightyears,price)  {  Planets.lightYears=lightYears;  Planets.price=price;  }  } | **b)**  public class final {  public static void main (String[] args)  {  String[] cars = {"Volvo", "BMW", "Ford", "Mazda"};  for (int i=0; i<10; i++)  {  System.out.println(cars[i]);  }  }  } |

**Answer:**

**a):**

**Incorrect Constructor Parameters:**

* The constructor should take one parameter, not two. No need of price.

**No need of price in the constructor:**

* In the constructor there is no need of ‘Planets.price=price;’.

**Incorrect statement in the constructor:**

* In the constructor there is incorrect statement of ‘Planets.lightYears=lightYears;’.
* This should be ‘this.lightYears=lightyears’;.

**b):**

**Incorrect for loop:**

* The cars array has only 4 elements, but the loop is running 10 times (i < 10), which will result in an Array Index Out of Bound.
* This should be for (int i=0; i<4; i++).