

DMAD-1-02P: Java Programming Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

P1: Print "Hello, World!"

```
public class P1 {  
    public static void main(String[] args) {  
        System.out.println("Hello, World!");  
    }  
}
```

P2: Take two numbers as input and display their sum

```
import java.util.Scanner;  
  
public class P2 {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        System.out.print("Enter first number: ");  
        int a = sc.nextInt();  
        System.out.print("Enter second number: ");  
        int b = sc.nextInt();  
        System.out.println("Sum = " + (a + b));  
    }  
}
```

P3: Generate and print the multiplication table for a given number

```
import java.util.Scanner;  
  
public class P3 {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        System.out.print("Enter number: ");  
        int num = sc.nextInt();  
        for (int i = 1; i <= 10; i++) {  
            System.out.println(num + " x " + i + " = " + (num * i));  
        }  
    }  
}
```

P4: Compute the factorial of a given number

```
import java.util.Scanner;  
  
public class P4 {
```

```

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number: ");
        int n = sc.nextInt();
        long fact = 1;
        for (int i = 1; i <= n; i++) {
            fact *= i;
        }
        System.out.println("Factorial = " + fact);
    }
}

```

P5: Check whether a number is prime or not

```

import java.util.Scanner;

public class P5 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number: ");
        int n = sc.nextInt();
        boolean isPrime = n > 1;
        for (int i = 2; i <= Math.sqrt(n); i++) {
            if (n % i == 0) {
                isPrime = false;
                break;
            }
        }
        System.out.println(n + (isPrime ? " is Prime" : " is Not Prime"));
    }
}

```

P6: Print Fibonacci sequence up to N terms

```

import java.util.Scanner;

public class P6 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number of terms: ");
        int n = sc.nextInt();
        int a = 0, b = 1;
        System.out.print("Fibonacci: " + a + " " + b);
        for (int i = 2; i < n; i++) {
            int c = a + b;
            System.out.print(" " + c);
            a = b;
            b = c;
        }
    }
}

```

P7: Implement switch statement

```

import java.util.Scanner;

```

```

public class P7 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("1: Greet\n2: Exit");
        int choice = sc.nextInt();
        switch (choice) {
            case 1: System.out.println("Hello!"); break;
            case 2: System.out.println("Exiting..."); break;
            default: System.out.println("Invalid choice");
        }
    }
}

```

P8: Find the largest element in an array

```

public class P8 {
    public static void main(String[] args) {
        int[] arr = {5, 3, 9, 1, 7};
        int max = arr[0];
        for (int i : arr) {
            if (i > max) max = i;
        }
        System.out.println("Largest: " + max);
    }
}

```

P9: Reverse the elements in an array

```

public class P9 {
    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4, 5};
        for (int i = arr.length - 1; i >= 0; i--) {
            System.out.print(arr[i] + " ");
        }
    }
}

```

P10: Linear search in an array

```

import java.util.Scanner;

public class P10 {
    public static void main(String[] args) {
        int[] arr = {4, 2, 7, 9, 1};
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter element to search: ");
        int key = sc.nextInt();
        boolean found = false;
        for (int i : arr) {
            if (i == key) {
                found = true;
                break;
            }
        }
    }
}

```

```

        System.out.println(found ? "Found" : "Not Found");
    }
}

```

P11: Class representing a Book

```

class Book {
    String title, author;
    int year;

    Book(String title, String author, int year) {
        this.title = title;
        this.author = author;
        this.year = year;
    }

    void display() {
        System.out.println(title + " by " + author + ", " + year);
    }

    public static void main(String[] args) {
        Book b = new Book("Java Basics", "John Doe", 2021);
        b.display();
    }
}

```

P12: Implement inheritance

```

class Animal {
    void sound() {
        System.out.println("Animal makes sound");
    }
}

class Dog extends Animal {
    void sound() {
        System.out.println("Dog barks");
    }

    public static void main(String[] args) {
        Dog d = new Dog();
        d.sound();
    }
}

```

P13: Create and implement an interface

```

interface Drawable {
    void draw();
}

```

```

class Circle implements Drawable {
    public void draw() {
        System.out.println("Drawing Circle");
    }

    public static void main(String[] args) {
        Circle c = new Circle();
        c.draw();
    }
}

```

P14: Use try-catch for exception handling

```

public class P14 {
    public static void main(String[] args) {
        try {
            int a = 5 / 0;
        } catch (ArithmeticException e) {
            System.out.println("Division by zero is not allowed.");
        }
    }
}

```

P15: Input mismatch exception

```

import java.util.InputMismatchException;
import java.util.Scanner;

public class P15 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        try {
            System.out.print("Enter an integer: ");
            int num = sc.nextInt();
            System.out.println("You entered: " + num);
        } catch (InputMismatchException e) {
            System.out.println("Invalid input! Please enter an integer.");
        }
    }
}

```

P16: Read and write data to a text file

```

import java.io.*;

public class P16 {
    public static void main(String[] args) {
        try {
            FileWriter writer = new FileWriter("data.txt");
            writer.write("Hello File!");
            writer.close();

            BufferedReader reader = new BufferedReader(new
            FileReader("data.txt"));
            String line = reader.readLine();

```

```

        System.out.println("File content: " + line);
        reader.close();
    } catch (IOException e) {
        System.out.println("Error: " + e.getMessage());
    }
}
}

```

P17: List all files in a directory

```

import java.io.File;

public class P17 {
    public static void main(String[] args) {
        File dir = new File(".");
        String[] files = dir.list();
        if (files != null) {
            for (String file : files) {
                System.out.println(file);
            }
        }
    }
}

```

P18: Multithreaded program using Thread class

```

class MyThread extends Thread {
    public void run() {
        for (int i = 1; i <= 5; i++) {
            System.out.println("Thread: " + i);
        }
    }

    public static void main(String[] args) {
        MyThread t = new MyThread();
        t.start();
    }
}

```