**OOPJ Lab Assignment**

1. Greatest of Two Test Scores Scenario: Your friend took two mock tests. Write a program to take the two test scores as input and print which test the friend scored higher in.

Input: Enter score for Test 1: 78 Enter score for Test 2: 85 Output: Test 2 has higher score.

import java.util.Scanner;

class GreatestTestScore

{

public static void checkHigherScore(int test1, int test2) {

if (test1 > test2) {

System.out.println("Test 1 has higher score.");

} else if (test2 > test1) {

System.out.println("Test 2 has higher score.");

} else {

System.out.println("Both tests have equal scores.");

}

}

public static void main(String[]args)

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter Score for Test1:");

int test1=sc.nextInt();

System.out.println("Enter Score for Test2:");

int test2=sc.nextInt();

checkHigherScore(test1,test2);

sc.close();

}

}

------------------------------------------------------------------------------------------------

1. Highest Salary Among Three Offers Scenario:

You have three job offers. Take the offered salaries as input and print which company is offering the highest salary. Input:

Enter salary for Company 1: 45000

Enter salary for Company 2: 52000

Enter salary for Company 3: 50000

Output: Company 2 offers the highest salary.

import java.util.Scanner;

class HighestSalary{

public static void HighestSalary(int c1,int c2,int c3){

if (c1 > c2 && c1 > c3) {

System.out.println("Company 1 offers the highest salary.");

} else if (c2 > c1 && c2 > c3) {

System.out.println("Company 2 offers the highest salary.");

} else if (c3 > c1 && c3 > c2) {

System.out.println("Company 3 offers the highest salary.");

} else {

System.out.println("Two or more companies offer the same highest salary.");

}

}

public static void main(String[]args){

Scanner sc=new Scanner(System.in);

System.out.print("Enter salary for Company 1: ");

int c1 = sc.nextInt();

System.out.print("Enter salary for Company 2: ");

int c2 = sc.nextInt();

System.out.print("Enter salary for Company 3: ");

int c3 = sc.nextInt();

HighestSalary(c1,c2 ,c3);

sc.close();

}

}

1. Bank Transaction Check Scenario:

You check your bank account and see a transaction amount. Print whether the transaction is a deposit (positive) or a withdrawal (negative).

Input: Enter transaction amount: -2500

Output: Withdrawal transaction.

import java.util.Scanner;

public class BankTransaction {

public static void checkTransaction(int amount) {

if (amount > 0) {

System.out.println("Deposit transaction.");

} else if (amount < 0) {

System.out.println("Withdrawal transaction.");

} else {

System.out.println("No transaction.");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int amount = sc.nextInt();

checkTransaction(amount);

sc.close();

}

}

1. Even or Odd Locker Number Scenario:

Your school assigns lockers with numbers.

Take locker number as input and print whether it is even or odd.

Input: Enter locker number: 17

Output: Odd locker number

import java.util.Scanner;

public class LockerCheck {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int locker = sc.nextInt();

if (locker % 2 == 0) {

System.out.println("Even locker number");

} else {

System.out.println("Odd locker number");

}

sc.close();

}

}

1. Square or Rectangle Garden Scenario:

You are designing a small garden. Take its length and breadth as input and check whether it is a square garden or rectangular.

Input: Enter length: 12

Enter breadth: 12

Output: Square garden

import java.util.Scanner;

public class GardenCheck {

public static void checkGarden(int length, int breadth) {

if (length == breadth) {

System.out.println("Square garden");

} else {

System.out.println("Rectangular garden");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int length = sc.nextInt();

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

int breadth = sc.nextInt();

checkGarden(length, breadth);

sc.close();

}

}

1. Leap Year Check for a Birthday

Scenario: You want to celebrate your friend’s birthday on Feb 29 if it’s a leap year. Take the year as input and check if it’s a leap year.

Input: Enter year: 2024

Output: 2024 is a leap year.

import java.util.Scanner;

public class LeapYearCheck {

public static void checkLeapYear(int year) {

if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0)) {

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

} else {

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

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int year = sc.nextInt();

checkLeapYear(year);

sc.close();

}

}

1. Exam Pass or Fail Scenario: A student gives an exam.

Take marks (0–100) as input and print whether the student has passed (>=35) or failed. Input: Enter marks: 42

Output: Student has passed. C

import java.util.Scanner;

public class ExamResult {

public static void checkResult(int marks) {

if (marks >= 35) {

System.out.println("Student has passed.");

} else {

System.out.println("Student has failed.");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int marks = sc.nextInt();

checkResult(marks);

sc.close();

}

}

1. Shop Discount Calculation Scenario: A shop offers 10% discount if the purchase amount exceeds 1000. Take total purchase amount as input and calculate final cost.

Input: Enter total purchase amount: 1200

Output: Final cost after discount: 1080

import java.util.Scanner;

public class ShopDiscount {

public static void calculateFinalCost(double amount) {

if (amount > 1000) {

amount = amount - (amount \* 0.10);

}

System.out.println("Final cost after discount: " + amount);

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter total purchase amount: ");

double amount = sc.nextDouble();

calculateFinalCost(amount);

sc.close();

}

}

1. Employee Bonus Eligibility Scenario: A company gives a 5% bonus to employees with more than 5 years of service. Take salary and years of service as input and print bonus amount.

Input: Enter salary: 50000

Enter years of service: 6

Output: Bonus amount: 2500

import java.util.Scanner;

public class EmployeeBonus {

public static void calculateBonus(double salary, int years) {

if (years > 5) {

double bonus = salary \* 0.05; // 5% bonus

System.out.println("Bonus amount: " + bonus);

} else {

System.out.println("No bonus, less than 5 years of service.");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double salary = sc.nextDouble();

System.out.print("Enter years of service: ");

int years = sc.nextInt();

calculateBonus(salary, years);

sc.close();

}

}

1. Exam Attendance Eligibility Scenario: A student can sit in exams only if attendance >=75%. Take total classes held and attended as input, print allowance.

Input: Enter total classes

held: 100 Enter classes attended: 78

Output: Student is allowed to sit for the exam

import java.util.Scanner;

public class ExamAttendance {

public static void checkAttendance(int totalClasses, int attendedClasses) {

double percentage = (attendedClasses \* 100.0) / totalClasses;

if (percentage >= 75) {

System.out.println("Student is allowed to sit for the exam");

} else {

System.out.println("Student is NOT allowed to sit for the exam");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter total classes held: ");

int total = sc.nextInt();

System.out.print("Enter classes attended: ");

int attended = sc.nextInt();

checkAttendance(total, attended);

sc.close();}}

1. Grade Based on Percentage Scenario:

Your friend got exam marks. Take percentage marks as input and print the grade: ● 90+ → A+

● 76–89 → A

● 66–75 → B+

● 51–65 → B

● 36–50 → C

● Below 35 → Fail

Input: Enter percentage marks: 82

Output: Grade: A

import java.util.Scanner;

public class GradeCalculator {

public static void calculateGrade(int percentage) {

if (percentage >= 90) {

System.out.println("Grade: A+");

} else if (percentage >= 76) {

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

} else if (percentage >= 66) {

System.out.println("Grade: B+");

} else if (percentage >= 51) {

System.out.println("Grade: B");

} else if (percentage >= 36) {

System.out.println("Grade: C");

} else {

System.out.println("Grade: Fail");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter percentage marks: ");

int percentage = sc.nextInt();

calculateGrade(percentage);

sc.close();

}}

1. Oldest and Youngest Among Three Friends Scenario:

You and two friends want to know who is oldest and youngest. Take ages as input and print the oldest and youngest.

Input:

Enter age of Friend 1: 22

Enter age of Friend 2: 25

Enter age of Friend 3: 20

Output: Oldest: Friend 2 Youngest: Friend 3

import java.util.Scanner;

public class FriendsAgeCheck {

public static void checkAges(int age1, int age2, int age3) {

int oldest, youngest;

String oldestFriend = "", youngestFriend = "";

if (age1 >= age2 && age1 >= age3) {

oldest = age1;

oldestFriend = "Friend 1";

} else if (age2 >= age1 && age2 >= age3) {

oldest = age2;

oldestFriend = "Friend 2";

} else {

oldest = age3;

oldestFriend = "Friend 3";

}

if (age1 <= age2 && age1 <= age3) {

youngest = age1;

youngestFriend = "Friend 1";

} else if (age2 <= age1 && age2 <= age3) {

youngest = age2;

youngestFriend = "Friend 2";

} else {

youngest = age3;

youngestFriend = "Friend 3";

}

System.out.println("Oldest: " + oldestFriend);

System.out.println("Youngest: " + youngestFriend);

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter age of Friend 1: ");

int age1 = sc.nextInt();

System.out.print("Enter age of Friend 2: ");

int age2 = sc.nextInt();

System.out.print("Enter age of Friend 3: ");

int age3 = sc.nextInt();

checkAges(age1, age2, age3);

sc.close();

}

}

1. Exam Eligibility with Medical Cause Scenario:

A student’s attendance is low but may have medical cause. Take classes held, attended, and medical cause (Y/N) as input and decide if the student can sit in exam.

Input: Classes held: 100 Classes attended: 60 Medical cause (Y/N): Y Output: Student is allowed to sit for the exam

import java.util.Scanner;

public class ExamEligibility {

public static void checkEligibility(int held, int attended, char medical) {

double attendance = (attended \* 100.0) / held;

if (attendance >= 75) {

System.out.println("Student is allowed to sit for the exam");

} else if (medical == 'Y' || medical == 'y') {

System.out.println("Student is allowed to sit for the exam due to medical cause");

} else {

System.out.println("Student is NOT allowed to sit for the exam");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Classes held: ");

int held = sc.nextInt();

System.out.print("Classes attended: ");

int attended = sc.nextInt();

System.out.print("Medical cause (Y/N): ");

char medical = sc.next().charAt(0);

checkEligibility(held, attended, medical);

sc.close();

}

}

1. Reverse a 4-Digit Number Scenario:

Take a 4-digit number and print its reverse.

Input: Enter 4-digit number: 1234

Output: Reversed number: 4321

import java.util.Scanner;

public class ReverseNumber {

public static void reverseNumber(int num) {

int reversed = 0;

while (num > 0) {

int digit = num % 10;

reversed = reversed \* 10 + digit;

num = num / 10;

}

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

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter 4-digit number: ");

int num = sc.nextInt();

reverseNumber(num);

sc.close();

}

}

1. Lucky Number Check Scenario:

A 4-digit number ABCD is lucky if A+B = C+D. Check if a number is lucky. Input: Enter 4-digit number: 3521

Output: Not a lucky number

import java.util.Scanner;

public class LuckyNumberCheck {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter 4-digit number: ");

int num = sc.nextInt();

int d1 = num / 1000;

int d2 = (num / 100) % 10;

int d3 = (num / 10) % 10;

int d4 = num % 10;

if ((d1 + d2) == (d3 + d4)) {

System.out.println("Lucky number");

} else {

System.out.println("Not a lucky number");

}

sc.close();

}

}

1. Vowel or Consonant Checker Scenario:

Take a character input and print whether it is a vowel or consonant. Print error for invalid input.

Input: Enter a character: e

Output: Vowel

import java.util.Scanner;

public class VowelConsonantChecker {

public static void checkVowelOrConsonant(char ch) {

if (Character.isLetter(ch)) {

ch = Character.toLowerCase(ch);

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

System.out.println("Vowel");

} else {

System.out.println("Consonant");

}

} else {

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

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

char ch = sc.next().charAt(0);

checkVowelOrConsonant(ch);

sc.close();

}

}

1. Divisibility Check Scenario: Check if a number is divisible by 2, 3, and 5 using nested if-else.

Input: Enter number: 30

Output: Divisible by 2 Divisible by 3 Divisible by 5

import java.util.Scanner;

public class DivisibilityCheck {

public static void checkDivisibility(int num) {

if (num % 2 == 0) {

System.out.println("Divisible by 2");

if (num % 3 == 0) {

System.out.println("Divisible by 3");

if (num % 5 == 0) {

System.out.println("Divisible by 5");

}

}

} else {

System.out.println("Not divisible by 2, 3, and 5 together");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num = sc.nextInt();

checkDivisibility(num);

sc.close();

}

}

1. Day of the Week Scenario: Take day number (1–7) and print the day name.

Input: Enter day number: 4

Output: Day is Thursday

import java.util.Scanner;

public class DayOfWeek {

public static void printDay(int day) {

if (day == 1) {

System.out.println("Day is Monday");

} else if (day == 2) {

System.out.println("Day is Tuesday");

} else if (day == 3) {

System.out.println("Day is Wednesday");

} else if (day == 4) {

System.out.println("Day is Thursday");

} else if (day == 5) {

System.out.println("Day is Friday");

} else if (day == 6) {

System.out.println("Day is Saturday");

} else if (day == 7) {

System.out.println("Day is Sunday");

} else {

System.out.println("Invalid day number!");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter day number (1-7): ");

int day = sc.nextInt();

printDay(day);

sc.close();

}

}

1. Days in a Month Scenario: Take month number (1–12) and print number of days in that month.

Input: Enter month number: 2

Output: 28 or 29 days

import java.util.Scanner;

public class DaysInMonth {

public static void printDays(int month) {

if (month == 1 || month == 3 || month == 5 || month == 7 || month == 8 || month == 10 || month == 12) {

System.out.println("31 days");

} else if (month == 4 || month == 6 || month == 9 || month == 11) {

System.out.println("30 days");

} else if (month == 2) {

System.out.println("28 or 29 days");

} else {

System.out.println("Invalid month number!");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter month number (1-12): ");

int month = sc.nextInt();

printDays(month);

sc.close();

}

}

20. Basic Calculator Using If-Else

Scenario: Create a calculator that takes two numbers and an operator (+, -, \*, /) and prints result using

nested if-else.

Input:

Enter first number: 10

Enter second number: 5

Enter operator: \*

Output:

Result: 50

import java.util.Scanner;

public class BasicCalculator {

public static void calculate(double num1, double num2, char operator) {

if (operator == '+') {

System.out.println("Result: " + (num1 + num2));

} else if (operator == '-') {

System.out.println("Result: " + (num1 - num2));

} else if (operator == '\*') {

System.out.println("Result: " + (num1 \* num2));

} else if (operator == '/') {

if (num2 != 0) {

System.out.println("Result: " + (num1 / num2));

} else {

System.out.println("Error: Division by zero is not allowed.");

}

} else {

System.out.println("Invalid operator!");

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double num1 = sc.nextDouble();

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

double num2 = sc.nextDouble();

System.out.print("Enter operator (+, -, \*, /): ");

char operator = sc.next().charAt(0);

calculate(num1, num2, operator);

sc.close();

}

}

21.Day of the Week (Ternary) Scenario: Take an int (1–7) and print the corresponding day of the week using ternary operators.

Input: Enter day number: 3

Output: Day is Wednesday

import java.util.Scanner;

public class DayOfWeekTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter day number (1-7): ");

int day = sc.nextInt();

String dayName = (day == 1) ? "Monday" :

(day == 2) ? "Tuesday" :

(day == 3) ? "Wednesday" :

(day == 4) ? "Thursday" :

(day == 5) ? "Friday" :

(day == 6) ? "Saturday" :

(day == 7) ? "Sunday" :

"Invalid day number";

System.out.println("Day is " + dayName);

sc.close();

}

}

22.Month Name from Number Scenario: Take month number (1–12) and print the month name using ternary operators or if-else.

Input: Enter month number: 8

Output: Month is August

import java.util.Scanner;

public class MonthName {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter month number (1-12): ");

int month = sc.nextInt();

String monthName;

if (month == 1) monthName = "January";

else if (month == 2) monthName = "February";

else if (month == 3) monthName = "March";

else if (month == 4) monthName = "April";

else if (month == 5) monthName = "May";

else if (month == 6) monthName = "June";

else if (month == 7) monthName = "July";

else if (month == 8) monthName = "August";

else if (month == 9) monthName = "September";

else if (month == 10) monthName = "October";

else if (month == 11) monthName = "November";

else if (month == 12) monthName = "December";

else monthName = "Invalid month number";

System.out.println("Month is " + monthName);

sc.close();

}

}

23.Basic Calculator Using Switch-Case Scenario: Create a calculator that uses switch-case for operators (+, -, \*, /) and prints result.

Input: Enter first number: 15

Enter second number: 3 Enter operator: /

Output: Result: 5

import java.util.Scanner;

public class CalculatorSwitch {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double num1 = sc.nextDouble();

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

double num2 = sc.nextDouble();

System.out.print("Enter operator (+, -, \*, /): ");

char operator = sc.next().charAt(0);

double result;

switch (operator) {

case '+':

result = num1 + num2;

System.out.println("Result: " + result);

break;

case '-':

result = num1 - num2;

System.out.println("Result: " + result);

break;

case '\*':

result = num1 \* num2;

System.out.println("Result: " + result);

break;

case '/':

if (num2 != 0) {

result = num1 / num2;

System.out.println("Result: " + result);

} else {

System.out.println("Error: Division by zero is not allowed.");

}

break;

default:

System.out.println("Invalid operator!");

}

sc.close();

}

}

24.Grade Using Switch (Ranges) Scenario:

Take marks (0–100) and print grade using switch-case grouping:

● 0–24 → F

● 25–44 → E

● 45–54 → D

● 55–69 → C

● 70–84 → B

● 85–100 → A

Input: Enter marks: 78

Output: Grade: B

import java.util.Scanner;

public class GradeSwitch {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter marks (0–100): ");

int marks = sc.nextInt();

String grade;

if (marks < 0 || marks > 100) {

grade = "Invalid marks!";

} else {

switch (marks / 10) {

case 10:

case 9:

case 8:

grade = "A";

break;

case 7:

grade = "B";

break;

case 6:

if (marks >= 55) {

grade = "C";

} else {

grade = "D";

}

break;

case 5:

if (marks >= 55) {

grade = "C";

} else {

grade = "D";

}

break;

case 4:

if (marks >= 45) {

grade = "D";

} else {

grade = "E";

}

break;

case 3:

case 2:

grade = "E";

break;

case 1:

case 0:

grade = "F";

break;

default:

grade = "Invalid";

}

}

System.out.println("Grade: " + grade);

sc.close();

}

}

25.Message Based on Number (1–5) Scenario:

Take a number (1–5) and print a message according to the case. Useful for simple menu selection.

Input: Enter a number: 3

Output: You selected option 3

import java.util.Scanner;

public class MessageSwitch {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a number (1–5): ");

int num = sc.nextInt();

switch (num) {

case 1:

System.out.println("You selected option 1");

break;

case 2:

System.out.println("You selected option 2");

break;

case 3:

System.out.println("You selected option 3");

break;

case 4:

System.out.println("You selected option 4");

break;

case 5:

System.out.println("You selected option 5");

break;

default:

System.out.println("Invalid option! Please enter 1–5.");

}

sc.close();

}

}

26.Season Based on Month Scenario:

Print season based on month number:

● Dec–Feb → Winter

● Mar–May → Summer

● Jun–Aug → Monsoon

● Sep–Nov → Autumn

Input: Enter month number: 12

Output: Season is Winter

import java.util.Scanner;

public class SeasonCheck {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter month number (1–12): ");

int month = sc.nextInt();

if (month == 12 || month == 1 || month == 2) {

System.out.println("Season is Winter");

} else if (month >= 3 && month <= 5) {

System.out.println("Season is Summer");

} else if (month >= 6 && month <= 8) {

System.out.println("Season is Monsoon");

} else if (month >= 9 && month <= 11) {

System.out.println("Season is Autumn");

} else {

System.out.println("Invalid month number! Please enter 1–12.");

}

sc.close();

}

}

27.Print Message Based on Character (A–E) Scenario:

Take a character (A–E) and print a specific message using switch-case. Input: Enter a character: B

Output: You selected option B

import java.util.Scanner;

public class MessageByCharacter {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a character (A–E): ");

char ch = sc.next().charAt(0);

switch (ch) {

case 'A':

System.out.println("You selected option A");

break;

case 'B':

System.out.println("You selected option B");

break;

case 'C':

System.out.println("You selected option C");

break;

case 'D':

System.out.println("You selected option D");

break;

case 'E':

System.out.println("You selected option E");

break;

default:

System.out.println("Invalid input! Please enter A–E.");

}

sc.close();

}

}

28.Traffic Signal Instruction Scenario:

Take traffic signal color as input (Red, Green, Yellow) and print appropriate instruction.

Input: Enter traffic light color: Green

Output: Go

import java.util.Scanner;

public class TrafficSignal {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter traffic light color (Red/Yellow/Green): ");

String color = sc.next().toLowerCase();

switch (color) {

case "red":

System.out.println("Stop");

break;

case "yellow":

System.out.println("Get Ready");

break;

case "green":

System.out.println("Go");

break;

default:

System.out.println("Invalid color! Please enter Red, Yellow, or Green.");

}

sc.close();

}

}

29.Day Type Selection Scenario: Take user input for day type (1–Workday, 2–Weekend) and print working status.

Input: Enter day type (1–Workday, 2–Weekend): 2

Output: It’s weekend. No work today.

import java.util.Scanner;

public class DayTypeSelection {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter day type (1–Workday, 2–Weekend): ");

int dayType = sc.nextInt();

switch (dayType) {

case 1:

System.out.println("It’s a workday. Time to work!");

break;

case 2:

System.out.println("It’s weekend. No work today.");

break;

default:

System.out.println("Invalid input! Please enter 1 or 2.");

}

sc.close();

}

}

30.Menu-Based Simple Arithmetic Operations Scenario: Implement a menu-based program that asks user to select operation (Addition, Subtraction, Multiplication, Division) and prints result.

Input: Select operation (1-Addition, 2-Subtraction): 1

Enter first number: 20

Enter second number: 30

Output: Result: 50

import java.util.Scanner;

public class SimpleCalculator {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Select operation (1-Addition, 2-Subtraction, 3-Multiplication, 4-Division): ");

int choice = sc.nextInt();

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

double num1 = sc.nextDouble();

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

double num2 = sc.nextDouble();

double result;

switch (choice) {

case 1:

result = num1 + num2;

System.out.println("Result: " + result);

break;

case 2:

result = num1 - num2;

System.out.println("Result: " + result);

break;

case 3:

result = num1 \* num2;

System.out.println("Result: " + result);

break;

case 4:

if (num2 != 0) {

result = num1 / num2;

System.out.println("Result: " + result);

} else {

System.out.println("Error: Division by zero is not allowed.");

}

break;

default:

System.out.println("Invalid operation! Please select 1-4.");

}

sc.close();

}

}

1. Greatest of Two Numbers (Ternary) Scenario:

You want to quickly compare two numbers. Take two numbers as input and print the greatest using a ternary operator.

Input: Enter first number: 45

Enter second number: 30

Output: Greatest number: 45

import java.util.Scanner;

public class GreatestTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num1 = sc.nextInt();

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

int num2 = sc.nextInt();

int greatest = (num1 > num2) ? num1 : num2;

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

sc.close();

}

}

32. Positive, Negative, or Zero (Ternary) Scenario:

Take a number and determine if it is positive, negative, or zero using ternary operator.

Input: Enter a number: -12

Output: Number is Negative

import java.util.Scanner;

public class NumberSignTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num = sc.nextInt();

String result = (num > 0) ? "Number is Positive" : (num < 0) ? "Number is Negative" : "Number is Zero";

System.out.println(result);

sc.close();

}

}

33. Even or Odd (Ternary) Scenario:

Take a number and check if it is even or odd using ternary operator. Input: Enter a number: 17

Output: Number is Odd

import java.util.Scanner;

public class EvenOddTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num = sc.nextInt();

String result = (num % 2 == 0) ? "Number is Even" : "Number is Odd";

System.out.println(result);

sc.close();

} }

34. Voting Eligibility (Ternary) Scenario:

Ask user age and print “Eligible” or “Not Eligible” to vote using ternary operator.

Input: Enter age: 20

Output: Eligible to vote

import java.util.Scanner;

public class VotingEligibilityTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int age = sc.nextInt();

String result = (age >= 18) ? "Eligible to vote" : "Not Eligible to vote";

System.out.println(result);

sc.close();

}

}

35. Pass/Fail Check (Ternary) Scenario:

Take marks as input and print Pass or Fail using ternary operator (Pass if >=35).

Input: Enter marks: 28

Output: Fail

import java.util.Scanner;

public class PassFailTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int marks = sc.nextInt();

String result = (marks >= 35) ? "Pass" : "Fail";

System.out.println(result);

sc.close();

}

}

36. Smallest of Three Numbers (Nested Ternary)

Scenario: Take three numbers as input and print the smallest using nested ternary operator.

Input:

Enter numbers: 12, 8, 19

Output:

Smallest number: 8

import java.util.Scanner;

public class SmallestOfThree {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num1 = sc.nextInt();

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

int num2 = sc.nextInt();

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

int num3 = sc.nextInt();

int smallest = (num1 < num2) ? ((num1 < num3) ? num1 : num3) : ((num2 < num3) ? num2 : num3);

System.out.println("Smallest number: " + smallest);

sc.close();

}

}

37. Leap Year Check (Ternary)

Scenario: Take a year as input and check if it is a leap year using ternary operator.

Input:

Enter year: 2024

Output:

Leap Year

import java.util.Scanner;

public class LeapYearTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int year = sc.nextInt();

String result = (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0) ? "Leap Year" : "Not a Leap Year";

System.out.println(result);

sc.close();

}

}

38. Vowel or Consonant (Ternary)

Scenario: Take a character and check if it is a vowel or consonant using ternary operator.

Input:

Enter character: i

Output:

Vowel

import java.util.Scanner;

public class VowelConsonantTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

char ch = sc.next().toLowerCase().charAt(0);

String result = (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') ? "Vowel" : "Consonant";

System.out.println(result);

sc.close();

}

}

39. Bonus Eligibility (Ternary)

Scenario: A company gives 5% bonus if years of service > 5. Take salary and years of service, print

bonus eligibility using ternary.

Input:

Enter salary: 50000

Enter years of service: 6

Output:

Bonus: 2500

import java.util.Scanner;

public class BonusEligibilityTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double salary = sc.nextDouble();

System.out.print("Enter years of service: ");

int years = sc.nextInt();

double bonus = (years > 5) ? (salary \* 0.05) : 0;

System.out.println("Bonus: " + bonus);

sc.close();

}

}

40. Discount on Purchase (Ternary)

Scenario: A shop gives 10% discount if purchase amount > 1000. Take purchase amount and print total

cost using ternary.

Input:

Enter purchase amount: 1200

Output:

Total cost after discount: 1080

import java.util.Scanner;

public class PurchaseDiscountTernary {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double amount = sc.nextDouble();

double totalCost = (amount > 1000) ? (amount \* 0.9) : amount;

System.out.println("Total cost after discount: " + totalCost);

sc.close();

}

}

41. Check Armstrong Number (3-Digit)

Scenario: Take a 3-digit number and check if it is an Armstrong number (sum of cubes of digits =

number).

Input:

Enter number: 153

Output:

153 is an Armstrong number

import java.util.Scanner;

public class ArmstrongNumber {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a 3-digit number: ");

int num = sc.nextInt();

int originalNum = num;

int sum = 0;

while (num != 0) {

int digit = num % 10;

sum += digit \* digit \* digit;

num /= 10;

}

if (sum == originalNum) {

System.out.println(originalNum + " is an Armstrong number");

} else {

System.out.println(originalNum + " is not an Armstrong number");

}

sc.close();

}

}

42. Armstrong Numbers Between 100–500

Scenario: Print all Armstrong numbers between 100 and 500. Output:

153

370

371

407

public class ArmstrongRange {

public static void main(String[] args) {

for (int num = 100; num <= 500; num++) {

int sum = 0;

int temp = num;

while (temp != 0) {

int digit = temp % 10;

sum += digit \* digit \* digit;

temp /= 10;

}

if (sum == num) {

System.out.println(num);

}

}

}

}

43. Sum of Digits of a Number

Scenario: Take a number as input and print the sum of its digits.

Input:

Enter number: 482

Output:

Sum of digits: 14

import java.util.Scanner;

public class SumOfDigits {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num = sc.nextInt();

int sum = 0;

int temp = num;

while (temp != 0) {

int digit = temp % 10;

sum += digit;

temp /= 10;

}

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

sc.close();

}

}

44. Reverse 4-Digit Number and Palindrome Check

Scenario: Take a 4-digit number, reverse it, and check if it is a palindrome.

Input:

Enter 4-digit number: 1221

Output:

Reversed number: 1221

Palindrome: Yes

import java.util.Scanner;

public class ReversePalindrome {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a 4-digit number: ");

int num = sc.nextInt();

int temp = num;

int reversed = 0;

while (temp != 0) {

int digit = temp % 10;

reversed = reversed \* 10 + digit;

temp /= 10;

}

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

if (num == reversed) {

System.out.println("Palindrome: Yes");

} else {

System.out.println("Palindrome: No");

}

sc.close();

}

}

45. Sort Three Numbers in Ascending Order Scenario: Take three numbers and print them in ascending order.

Input: Enter numbers: 45, 12, 78

Output: Ascending order :12,45,78

import java.util.Scanner;

public class SortThreeNumbers {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num1 = sc.nextInt();

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

int num2 = sc.nextInt();

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

int num3 = sc.nextInt();

int temp;

if (num1 > num2) {

temp = num1;

num1 = num2;

num2 = temp;

}

if (num1 > num3) {

temp = num1;

num1 = num3;

num3 = temp;

}

if (num2 > num3) {

temp = num2;

num2 = num3;

num3 = temp;

}

System.out.println("Ascending order: " + num1 + ", " + num2 + ", " + num3);

sc.close();

}

}

46. Character Type Checker

Scenario: Take a character as input and print whether it is an alphabet, digit, or special character.

Input:

Enter character: %

Output:

Special Character

import java.util.Scanner;

public class CharacterTypeChecker {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

char ch = sc.next().charAt(0);

if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a' && ch <= 'z')) {

System.out.println("Alphabet");

} else if (ch >= '0' && ch <= '9') {

System.out.println("Digit");

} else {

System.out.println("Special Character");

}

sc.close();

}

}

47. Even/Odd Status of Two Numbers

Scenario: Take two numbers and print if both are even, both odd, or mixed.

Input:

Enter first number: 12

Enter second number: 17

Output:

Numbers are mixed (one even, one odd)

import java.util.Scanner;

public class EvenOddTwoNumbers {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num1 = sc.nextInt();

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

int num2 = sc.nextInt();

if (num1 % 2 == 0 && num2 % 2 == 0) {

System.out.println("Both numbers are even");

} else if (num1 % 2 != 0 && num2 % 2 != 0) {

System.out.println("Both numbers are odd");

} else {

System.out.println("Numbers are mixed (one even, one odd)");

}

sc.close();

}

}

48. Grade with Plus/Minus

Scenario: Take marks and print grade with plus/minus (e.g., 85 → A, 78 → A−).

Input:

Enter marks: 78

Output:

Grade: A−

import java.util.Scanner;

public class GradePlusMinus {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int marks = sc.nextInt();

String grade = "";

if (marks >= 85 && marks <= 100) {

grade = "A";

} else if (marks >= 70 && marks <= 84) {

grade = "A-";

} else if (marks >= 55 && marks <= 69) {

grade = "B";

} else if (marks >= 40 && marks <= 54) {

grade = "C";

} else if (marks >= 0 && marks <= 39) {

grade = "F";

} else {

grade = "Invalid marks";

}

System.out.println("Grade: " + grade);

sc.close();

}

}

49. Days in Month Considering Leap Year

Scenario: Take a year and month number, print days in that month considering leap years.

Input:

Enter year: 2024

Enter month number: 2

Output:

29 days

import java.util.Scanner;

public class DaysInMonth {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int year = sc.nextInt();

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

int month = sc.nextInt();

int days;

if (month == 2) {

if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {

days = 29;

} else {

days = 28;

}

} else if (month == 4 || month == 6 || month == 9 || month == 11) {

days = 30;

} else if (month >= 1 && month <= 12) {

days = 31;

} else {

days = -1;

}

if (days != -1) {

System.out.println(days + " days");

} else {

System.out.println("Invalid month number");

}

sc.close();

}

}

50. Divisibility by 2, 3, 5 with Custom Messages

Scenario: Take a number and check divisibility by 2, 3, and 5, printing custom messages for each.

Input:

Enter number: 30

Output:

Divisible by 2

Divisible by 3

Divisible by 5

import java.util.Scanner;

public class DivisibilityCheck {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int num = sc.nextInt();

if (num % 2 == 0) {

System.out.println("Divisible by 2");

}

if (num % 3 == 0) {

System.out.println("Divisible by 3");

}

if (num % 5 == 0) {

System.out.println("Divisible by 5");

}

if (num % 2 != 0 && num % 3 != 0 && num % 5 != 0) {

System.out.println("Not divisible by 2, 3, or 5");

}

sc.close();

}

}