

Session 4 Exercises

Basic Dart Program

Topic: Main function, Print statement

Exercise: Write a Dart program with a main function that prints 'Hello, Dart World!' to the console. Modify it to print 'Hello, [Your Name]!' by using a variable.

Variable Manipulation

Topic: Variables, Data types (int, double, String, bool)

Exercise: Create a Dart program that declares and initializes variables of different types (int, double, String, bool). Calculate the sum of two numbers, concatenate two strings, and print out the results.

Simple Calculator

Topic: Arithmetic operators

Exercise: Build a program that takes two numbers as input and performs addition, subtraction, multiplication, and division. Display each result to the console.

Collection Operations

Topic: Lists, Sets, Maps

Exercise:

- Create a list of numbers, add a few elements, remove one, and display the final list.
- Create a set with some duplicate elements and print the set to show that duplicates are removed.
- Create a map with keys as student names and values as grades. Print a student's grade by accessing their name in the map.

Conditional Logic for User Roles

Topic: Conditional statements, If-Else, Logical operators

Exercise: Write a program that checks the role of a user (e.g., admin, user, guest). Print 'Welcome Admin' if the role is admin, 'Welcome User' if it's user, and 'Welcome Guest' otherwise.

Number Classification

Topic: Loops, Comparison operators

Exercise: Use a for loop to iterate through numbers 1 to 20. For each number, print whether it's even or odd.

Student Grades Program

Topic: Functions, Parameters, Return statement

Exercise: Create a function called `calculateGrade` that takes a score (0 to 100) as a parameter and returns a letter grade (e.g., A, B, C). Then write a main function to call `calculateGrade` and print the grade for a given score.

Inventory Management System

Topic: Classes, Objects, Encapsulation

Exercise: Define a class `Product` with properties like name, price, and quantity. Include methods to update the quantity and calculate the total price for a given quantity. In the main function, create a `Product` object, update the quantity, and print the total price.

Null Safety

Topic: Null Safety

Exercise: Create a variable that may hold null and initialize it to a value. Then use the null-aware operator (`??`) to print either the variable's value or a default message if it's null.

Custom Message Function

Topic: Optional and Named Parameters

Exercise: Write a function `displayMessage` that takes a required `String` message, an optional `String` name, and a named `int` repeat with a default value of 1. The function should print the message and the name repeat times. If name is not provided, it should print the message alone.