Assignment 5

Task 1: Null Safety Basics

    1. Declare a nullable `String` variable `name`.
    2. Assign it a value and print it.
    3. Set it to `null`, check if it is null, and print a message accordingly.

Example:

```
String? name = "Huzaifa";
print(name); // Output: Huzaifa

name = null;
if (name == null) {
  print("Name is null!");
}
```

Task 2: Handling Null with Default Values

    1. Write a program that asks for a user's age but allows it to be `null`.
    2. If the age is `null`, print `"Age not provided"`, otherwise print the age. 3. Use the null-coalescing operator (`??`) to provide a default value of `18` if no age is given.

Example Output:

```
User Age: 25
User Age: Age not provided
Default Age: 18
```

Task 3: Function without Return Statement

    1. Write a function `printGreeting(String name)` that prints `"Hello, [name]!"`.
    2. Call this function with different names.

Example Output:

```
Hello, Ali!
Hello, Sara!
```

Task 4: Function with Required Positional Parameters

Write a function `introduce(String name, int age)` that prints:
 My name is [name] and I am [age] years old.

    1.
    2. Make both parameters **required** (no default values).

Example Call:

introduce("Huzaifa", 22);

Output:

My name is Huzaifa and I am 22 years old.

Task 5: Function with Nullable Parameter

    1. Write a function `describeWeather(String city, int? temperature)`. 2. If `temperature` is null, print `"Weather data not available for [city]"`. 3. Otherwise, print `"The temperature in [city] is [temperature]°C."`.

Example Output:

The temperature in Karachi is 30°C.
Weather data not available for Lahore.

Task 6: Function Calling Another Function

    1. Write a function `printRectangle(int width, int height)` that prints a rectangle using `*`.
    2. Inside this function, call another function `printRow(int width)` to print a single row of `*`.

Example Call:
printRectangle(4, 3);

Output:

****
****
****

Task 7: Function Using List and Map

1. Write a function `printStudents(List<Map<String, dynamic>> students)` that prints student names and their scores.

Example List:

```
var students = [
  {"name": "Ali", "score": 85},
  {"name": "Sara", "score": 90},
  {"name": "John", "score": null}
];
```

Expected Output:

```
Student: Ali, Score: 85
Student: Sara, Score: 90
Student: John, Score: Not available
```

Task 8: Function Using Null Safety & Operators

1. Write a function `calculateArea(int? length, int? width)` that: ○ Uses the null-aware operator (`??`) to set default values (`length = 5`, `width = 5`).
   ○ Prints the calculated area.

Example Call:

```
calculateArea(null, 10);
```
Output:

Area:

50