LABSHEET-6

Exercise-1-Higher Order Functions

1. Consider the given list

   val values = List(2, 4, 5, 6, 7, 8)

   a. Use partition to separate even and odd numbers. What will the two resulting lists be?
   b. Explain how partition evaluates the condition and divides the list.
   c. Use split to separate even and odd numbers. What will the two resulting lists be?
   d. Explain how split evaluates the condition and divides the list.

2. Consider the below given code snippets:

   val data = List(1, 2, 3)

   a. What will `result` contain?
   b. How is `flatMap` different from `map` in terms of its behavior?

3. Consider the given list

   val numbers = List(5, 10, 15, 20)

   a. Use `filter` to keep only the numbers greater than 10. What is the output?
   b. Describe the role of the predicate function inside `filter`.

Exercise-II Tail Recursion

1. Write a tail-recursive function to find the factorial of a number..

2. Write a tail-recursive function to sum the elements of a list of integers:

3. Write a tail-recursive function to compute the nth Fibonacci number.

4. Write a tail-recursive function to reverse a list without using built-in reverse.