Part 1: Theoretical Questions

1. dimensions of variability across programming paradigms:

• Control Flow: how execution flows within the program (sequence and branches, in concurrent threads, in reactive manner, declarative).

• Code Organization: how code is organized into a hierarchy of units (expressions, functions, modules, packages) and how these units are organized.

• Performance: how code can be run fast, use less resources (RAM, disk, network), behave better (responsive, scalable) at runtime.

• Coupling and Reuse: how easily code can be reused in different contexts.

• Testing: how easy it is to test and verify that code is correct.

2. What are the types of the following functions:

All of those functions are of kind fat arrow notation.

(a) (x, y) => x + y

(x: number, y: number)=> number

(b) x => x[0]

(x: T[])=> T

(c) (x, y) => x ? y : -y

(x: boolean, y: number)=> number

3. What are "shortcut semantics"? Explain and give an example

some and every methods employ a concept known as 'shortcut semantics'. it means that **some** stops and immediately returns true at the moment it finds an element that satisfies the predicate. **every** stops and immediately returns false at the moment it finds an element that does not satisfy the predicate.

An example of shortcut semantic is the use of && which based on 'every' method and || which based on 'some' method..