ECE326 – Fall 2019: Week 10 Exercise Questions

1. True or False [1 mark each]

Circle T is true, otherwise circle F for false.

1. It is not possible to cause infinite recursion when working with variadic template. **T** **(F)**
2. In general, arguments to variadic functions are not type-checked. **(T)** **F**
3. In Rust, name aliasing is not allowed. **(T)** **F**
4. Rust is strongly typed. **(T)** **F**
5. In Rust, ownership is a mechanism to check for memory leaks at runtime. **T** **(F)**
6. The major disadvantage of Rust is that it automatically adds runtime type safety checks, which negatively affects its runtime performance. **T** **(F)**

2. Short Answer **[5 marks]**

What's the difference between the following two sets of statements?

```
// set 1
let x = 5;
let x = x + 2;
let x = x * 3;

// set 2
let mut x = 5;
x = x + 2;
x = x * 3;
```

Set 1 uses shadowing of immutable variables. The last x is the only variable that can be accessed after that statement.

Set 2 uses a single mutable variable.

3. Variadic Template **[10 marks]**

Write a variadic template that calculates the population variance of a set of values. The return type of the template should always be double, but the template arguments can take any numeric type.

https://en.wikipedia.org/wiki/Variance

See variance.cpp