WIA1002/WIB1002 Data Structure

Tutorial 2: Recursion (Fundamental)

1. Explain the problem that occurs when executing the recursive method f(0).

```
public static int f(int n) {
        if (n == 1)
                return n;
        else
                return n * f(n-1);
}
```

2. Explain the problem that occurs when executing the recursive method f().

```
public static int f(int n) {
        if (n == 0)
                return n;
        else
                return f(n+1) + n;
}
```

3. Write a recursive method to reverse a string.

   String → gnirts

4. Write a recursive method to calculate the following :

   5 + 4 + 3 + 2 + 1.

   State the base case and recursive case. Trace your solution using number, N of 5.

   Algorithm :
   1. Base case = 1
   2. Recursive case = n + sum(n-1)

5. Write a recursive method printDigit that prints an integer argument as its constituent digits, with a blank space separates each digit with the next. For example, if the argument is 4567, this method will print 4 5 6 7 on the screen.