

Exercise Sheet 3

- 1) Write a function that calculates the perimeter of a rectangle and call that function *perimeterCalculator* with the parameters 12 for length and 14 for width. Hint: this function should take 2 parameters.
- 2) Write a function that tell the person if he is allowed to pass his driving theory in the UK or not (18 years old) by returning a Boolean. The function should be called *drivingTheoryTester* and take age for parameter.
- 3) Write a function which by giving it your body mass index will tell you if you are healthy or not. Info: under 18.5 BMI means underweight; from 18.5 to 25 means healthy weight; from 25 to 30 means overweight and over 30 means obese.
- 4) Write a function which calculates the square of a number and then write a second function which calculates the cube of a number using the square function in its body. Pick appropriate names for the functions.
- 5) **Challenge:** Write a function which computes the factorial of a number. Look up what the factorial of a number is on internet first if you do not know what it is!

Turtle JS

Answers:

1)

```
4 function perimeterCalculator(length, width) {  
5     return 2*(length+width);  
6 }  
7  
8 perimeterCalculator(12, 14);
```

2)

```
4 function perimeterCalculator(age) {  
5     if(age >= 18) {  
6         return true;  
7     } else {  
8         return false;  
9     }  
10 }  
11  
12 var age = 5; //or anything else  
13 drivingTheoryTester(age);
```

3)

```
4 function BMIresult(BMI) {  
5  
6     if(0.0<BMI && BMI<18.5) {  
7         return "underweighth";  
8     } else if (18.5<=BMI && BMI<25.0) {  
9         return "healthy";  
10    } else if (25.0<=BMI && BMI<30.0) {  
11        return "overweighth";  
12    } else if (30.0<= BMI){  
13        return "obese";  
14    }  
15 }  
16  
17 var BMI = 20.0; //where you enter your BMI  
18 BMIresult(BMI);
```

4)

```
5 function square(number) {  
6     return number*number;  
7 }  
8  
9 function cube(number) {  
10    return square(number)*number;  
11 }  
12  
13 cube(2); // = 8 for example
```

- 5) This question introduces a concept called recursion. It is one of the most used concept in programming. Feel free to read about it online!

```
5  function factorial(number) {  
6  // this is because of the definition of  
7  // the factorial of 0  
8    if (number == 0){  
9      return 1;  
10   } else {  
11     return number*factorial(number);  
12   }  
13 }  
14  
15 factorial(3); // will give you 6;
```