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# Part 2

The second part of the material focuses on repetition in programs and on how to divide functionality into distinct units.

## In this part:

1. Recurring problems and patterns to solve them
2. Repeating functionality
3. More loops
4. Methods and dividing the program into smaller parts
5. End questionnaire

The table of contents above lists the topics of the second part of the course. The second part has been designed to cover the second week of the course. You should reserve well above 10 hours for each part of the course, depending on previous experience with computers. If you've tried programming before, you might advance faster in the beginning.

List of exercises in this part



## 1. Recurring problems and patterns to solve them

1. Quiz: Reacting to input
2. Programming exercise: Squared



3. Programming exercise: Square root of sum
4. Quiz: Executing conditional statements
5. Programming exercise: Absolute Value
6. Programming exercise: Comparing Numbers

## 2. Repeating functionality

1. Programming exercise: Carry on?
2. Programming exercise: Are we there yet?
3. Quiz: Exiting loop and limit
4. Programming exercise: Only positives
5. Programming exercise: Number of Numbers
6. Programming exercise: Number of negative numbers
7. Programming exercise: Sum of Numbers
8. Programming exercise: Number and sum of numbers
9. Programming exercise: Average of numbers
10. Programming exercise: Average of positive numbers

## 3. More loops

1. Quiz: Motivation and study strategies questionnaire
2. Programming exercise: Counting
3. Programming exercise: Counting to hundred
4. Programming exercise: From where to where? (2 parts)
5. Programming exercise: Sum of a sequence
6. Programming exercise: Sum of a sequence - the sequel
7. Programming exercise: Factorial
8. Programming exercise: Repeating, breaking and remembering (5 parts)

## 4. Methods and dividing the program into smaller parts

1. Programming exercise: In a hole in the ground
2. Programming exercise: Reprint
3. Quiz: Method name
4. Programming exercise: From one to parameter
5. Programming exercise: From parameter to one
6. Programming exercise: Division
7. Programming exercise: Divisible by three
8. Quiz: Variable and method
9. Programming exercise: Number uno
10. Programming exercise: Word



- [11. Quiz: Variables in method](#)
- [12. Quiz: Variable and method 2](#)
- [13. Programming exercise: Summation](#)
- [14. Programming exercise: Smallest](#)
- [15. Programming exercise: Greatest](#)
- [16. Programming exercise: Averaging](#)
- [17. Programming exercise: Star sign \(4 parts\)](#)
- [18. Programming exercise: Advanced astrology \(3 parts\)](#)

## 5. End questionnaire

- [1. Quiz: Part 2 learning objectives](#)



[Source code of the material](#)

This course is created by the Agile Education Research -research group [of the University of Helsinki](#).

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