**DEVELOPMENT BASIC SKILLS PROJECT REPORT**

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# 1 Introduction

Report on the Development Basic Skills project work in Oulu University of Applied Sciences. The project was done in pairs and included designing and implementing a web application with different mathematic tools. The mathematic functions are based on the content of the computing maths course.

**2 THE WORK ENVIRONMENT**

The physical work environment was school, but all the project material was held in a shared GitHub repository. Most work was done independently either in class or from home. In addition, Visual Studio Code was used to write the JavaScript functions, html and CSS.

# 3 Definition

The task was to design and implement five different mathematic tools based on what was learned during the period.

## 3.1 Number system conversions

The tool contains four numbering systems: decimal, binary, octal and hexadecimal. The user can convert a number from one number system to all of the others.

## 3.2 Number system outputs

The user can print a table with decimal numbers from 0-50 to with conversions to binary, octal and hexadecimal. The user can also clear the table.

## 3.3 Combinatorics

The tool calculates either combinations or permutations and gives the user a choice of sampling.

## 3.4 Truth tables

Truth tables with and, or, nand, nor and xor operators.

## 3.5 Random values

Tool for testing random value distributions. The user chooses a range of numbers and the tool shows the distribution.

# 4 Implementation

JavaScript was used to program the mathematical functions that were then connected to the html file using id’s.

CSS was used for the styling of the page. For simplicity it was decided to have all tools on one page, instead of having a menu and displaying one tool at a time.

# 5 Testing

Manual testing was done during the programming and bugs or errors were not catalogued during the project work. No testing by other people was conducted.

# 6 POSSIBILITIES OF FURTHER DEVELOPMENT

There are no plans for any further development.

# 7 conclusion

In conclusion the result of the project was decent. The functions work and the layout of the page is simple and easy to use. The biggest issue during the project work was the difference in skill level, the work load was difficult to divide evenly.

# APPENDICES

Excel time tracking sheet: <https://oamk-my.sharepoint.com/:x:/g/personal/t8juvi00_students_oamk_fi/EbRBKRTsR2BAsz-d3EKlaagBADJk9BnVajzYWWCTi1wcvA?e=Fqjw1p>