Overview

The course will finish with a project work, which brings all the subtopics together into a single work package. The project work will be the main factor in grading of the course.

Project Teams

This project will be done using two person teams. It is not possible to have more persons in a team.

Teams & members

Group 1: Brandsma Florian, Gudenko Oleksandr

Group 2: Oelen Leon, Burns Jamie

Group 3: Kresteva Zhanna, Nguyen Trang

Group 4: Caris Arne, Gulyás Máté

Group 5: Maresia Erik, Shil Sunny

Group 6: Lankila Jaakko, Nham Tran

Group 7: Paloniemi Tapio, Halmi Teemu

Group 8: Han Kihun, Bhetuwal Shyam

Group 9: Trieu Son, Le Quan

Group 10: Abbasi Aram, Similä Samuel, Pandey Shiva

Group11: Olaleye Ifedayo, Moniruzzaman Md

Deadline & Presentations

The project deadline is Monday 18th December. If you submit your work later than that, you will not get a grade at all. Submitting the work earlier is of course possible. In addition to submitting the project deliverables, each team will present their work to teachers and class on 18th December starting at 12:00 p.m.  The  maximum duration of the presentation is 15 minutes (strict limit).

The team must prepare for the presentation so that the team is immediately ready to present when it is their turn. Get your demo loaded, check beforehand that your computer has a compatible video output, make sure that your presentation slides are open and check all other necessary things. We want the minimum amount of delays between teams.

**Deliverables**

Every team will open a public repository in GitHub and **all project deliverables** will be stored there. Name your repository "DevBasicSkills2017-TeamNumber".

Code

The full implementation of the team's work must be available in the repository. All assets used by the project must be available.

Documentation

Project Plan

Th project plan document must be prepared in the beginning of the project. The plan will contain the following topics:

* Basic information, team members, GitHub repository address, used tools
* Overview of project phases and their schedule
* Planned activities in each phase
* Work time estimates for each activity

Time Tracking Sheets

Project team shall track their working time on daily basis. Each team member records their work time and writes a short description of activities.

Final Project Report

The final report describes the project results. The report must also contain  the user interface design material.

The report layout can be found on English course pages. Each team will upload their project report both to GitHub and to the return box of the English course.

Project Work Description

Your task is to design and implement a web based mathematics tool.

The tool will offer six different math functionalities for the user.

The math funcs are listed below.

1. Number system conversions
   * Create a tool for numbering system conversions. The tool must contain at least the four numbering systems: BIN, OCT, DEC, and HEX.  Additional requirements: Input validation. (Example: a bin input may contain only 0s and 1s, otherwise a user is informed).
2. Number system outputs
   * Print a table showing decimals 0-50 in BIN, OCT and HEX systems. Additional requirements: Use a table style. Add also a Clear button to clear the table.
3. Combinatorics
   * Create a simple tool for Combinatorics.

The tool is used to calculate either combinations or permutations. In the case of permutations, also the choice of sampling (sampling without or with replacement) must be taken into account. Additional requirements: Disable sampling options if combinations were chosen.

1. Truth tables
   * Create the basic set of truth tables for basic operations. Study the basic truth table symbol character codes (HTML / Unicode etc.). Use Booleans (true and false / 0 and 1). Do not use hard coding!
2. Random values
   * Create a tool to test random number distributions. Choose any range of numbers (integers or decimals) and classify the values. Show the distribution.
3. Design your own (optional)
   * Choose any mathematical discipline and create functionality for it.

Grading

Each subtopic of the project and course will be evaluated separately and the overall grade of the course will be determined by the combined evaluations.

The subtopics, their weights (in ECTS credits) and grading criterias are the following:

* HTML and CSS Programming (3 ECTS)
  + Project work implementation quality
    - Code Structure
    - Code Cleanliness
    - User experience
* Web User Interface Design and Usability (3 ECTS)
  + Weekly lab works
  + Exam
  + Project Work
* Computing Mathematics (3 ECTS)
  + Project work requirements fulfillment
  + Exam
  + Online tasks
* Object Oriented Programming (3 ECTS)
* Professional English Communication (3 ECTS)
  + Scoreable tasks before the project
  + Project presentation
  + Final project report

Each subtopic will be graded on a 20 point scale. The total amount of course points is 100 points.

Points-grade relationship:

* Grade 5, 90p or more
* Grade 4, 75p or more
* Grade 3, 60p or more
* Grade 2, 50p or more
* Grade 1, 40p or more