Objectives

- to apply coverage-based test design techniques discussed Lecture 02 and Lecture 03;
- to investigate tools applied to generate n-tuples used in **multivariable testing** and **configuration testing**.

Please perform the following tasks during laboratory.

All students will have to perform the below tasks in week 03/04.

Task	Description
[teams of 3-5 students] **Invalid Boundary Testing** **[20 min]** **[3 points]**	1. Please form teams of 3-5 students. 2. Play the game „**Testing Challenge #6 - Boundary testing**" available at http://testingchallenges.thetestingmap.org/challenge6.php. The goal is to indicate the **invalid boundary values** that can be used to test the input data. It requires applying the Boundary Testing (aka Boundary Value Analysis) technique discussed in Lecture 02/Lecture03. 3. Stop when you have identified **at least 6 invalid boundaries**. 4. Take a screenshot of the application with the list of invalid boundaries tested by your team. Post the screenshot in **Lab02** channel on MS Teams including the team member names as well. **Hint:** Firstly, identify the valid equivalence class for each date component considered as input, i.e., day, month, year, hour, minute. Then, examine the constraints included in the specification.
[teams of 3-5 students] **Tours, Multivariable Testing,** **All-Pair Tools** **[1h]** **[7 points]**	1. Please form teams of 3-5 students. 2. Consider the software product suggested during the last lab, i.e., **Gnu Cash** or any other software, at your choice, e.g., OO Writer/Spreadsheet/Presentation, MS Word/PowerPoint/Excel, Google Docs/Sheets/Slides. 3. Start the application. 4. **[20 mins]** Apply **tour-based test techniques** in order to identify the *features* and *variables*. Stop when you have identified 3 features and 3 variables/parameters for each feature. Create *a single file* (e.g., mind map, .docx file) that consists of the following details for each **feature**: - Feature *name* and a short *summary*; *input parameters*, valid domain for each input parameter (expressed as interval [min, max] or set of values $\{v_1, v_2,..., v_n\}$), special cases (if exists), dependent variables (if exists); *output parameters*, valid domain for each output parameter (expressed as interval [min, max] or set of values $\{v_1, v_2,..., v_n\}$), computation formula (if exists), dependent variables (if exists); - usage *constraints* (if exists). 5. **[40 mins]** Choose **minimum 3 independent variables** and perform **multivariable testing**. This testing technique is discussed during Lecture 03. Apply the *mechanical approach* on multivariable testing, i.e., using a tool to generate the test data following an input schema, i.e., valid domain limits. 5.1. Choose and install a tool available at http://www.pairwise.org/ (Links--> *Pairwise testing tools* section). **PICT** tool or an online tool is recommended. 5.2. Skim through the tool user manual/details web page and design a schema for the input data. It is recommended to use some constraints for the input schema. 5.3. Generate *all-pairs* variable values for the selected independent/dependent variables. 5.4. Report into a file the results, stating the tool used and the constraints considered. 6. Post the files created for sub-tasks 4. and 5. as .pdf files in **Lab02** channel on MS Teams including the team member names as well.
[individual/team] **TDTP** **[10 min]**	- Build a team for **TDTP Project** and think over the *application contexts* and *information objectives* that can be used over the three parts of the TDTP project.