HÁSKÓLI ÍSLANDS
Iðnaðarverkfræði-, vélaverkfræði- og tölvunarfræðideild

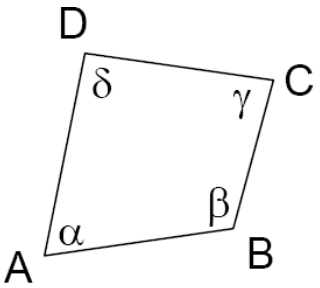
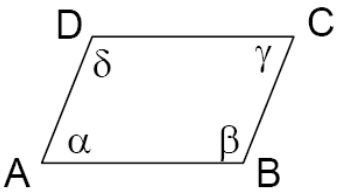
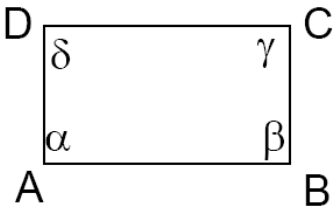
HBV205M: Prófun hugbúnaðar / Software Testing · Spring 2021
Dr. Helmut Neukirchen

Assignment 1 · Due 25.1.2021, 10:00

Formalities:

- Encouraged to submit as pair of 2. Submission of solution as PDF via Gradescope (accessible via Canvas)
- To show that you are active right from the start, you need to have submitted 2 assignments after the first 4 assignments.
- The best 8 (out of approx. 13) assignments contribute 20% to the final overall grade. For further formalities, have a look at Chapter 0.
- You need to have read Chapter 1 for solving this assignment. Direct any questions to Piazza: `https://piazza.com/hi.is/spring2021/hbv205m/home`
- Should you have joined the course late, you might not have been added in Piazza nor Gradescope: contact `helmut@hi.is` to get added there.

Create positive and negative logical and concrete test cases for testing a function that expects as parameters four integer values and interpretes them as the internal angle of a quadrilateral; the program is able to identify the following types of quadrilaterals:

Irregular quadrilateral	Parallelogram	Rectangle
		
$\alpha+\beta+\gamma+\delta = 360°$	$\alpha = \gamma \wedge \beta = \delta \wedge \alpha \neq \beta$	$\alpha = \beta = \gamma = \delta = 90°$

Inputs of the program are `alpha, beta, gamma, delta`, the return value is of an enumeration type consisting of `irregular, parallelogram, rectangle`. In addition, an *exception* can by thrown to indicate any kind of problem.

Assume that the function is implemented as method `classify` in Java (which is a strongly typed language with type checking at compile time and the used integers are of the basic type `int` which are always signed and passed in by value – not by reference). You do *not* need to test for overflows.

Group your test cases and sort these groups by priority from highest priority to lowest priority. Mention briefly which criteria you used to group and prioritise the test cases.

If you have a Google account, work online on a copy of the following template:
`https://docs.google.com/spreadsheets/d/1FnVoXnQU-BCi--F3OYeYG3ngZ0VDAe3xvUvMjPagYnA/copy`
If you have no Google account, you can view and download a copy of the template from here:
`https://docs.google.com/spreadsheets/d/1FnVoXnQU-BCi--F3OYeYG3ngZ0VDAe3xvUvMjPagYnA/edit?usp=sharing`

To keep in mind during flipped classroom sessions

- Have audio working (use smartphone with Zoom app in case of problems). Switch on video to create a more personal atmosphere.
- First: Questions concerning slides/videos discussed.
- Next: Solution of last week's assignment presented.
- Then: New assignment introduced.
- Finally: Work on assignment using random distribution to breakout rooms: two students each.
  - Breakout rooms do not get recorded.
  - First thing to do: exchange contact details (email or phone), e.g. via chat (local to each breakout room), so that you can continue in case of technical problems/after class finishes.
  - Create some shared document to work together on the solution. You can also share your screen inside your breakout room.
  - Use "Ask for help" button to make Helmut join (but may take time if he is busy in another breakout room). In case of being idle, Helmut will come along each breakout room.
  - Submit one PDF per team to Gradescope (unless you disagree on solution): use Gradescope's group submission feature. Gradescope is reachable via Canvas. You have one week for (re-)submission.
  - In case of some announcement for all (e.g. Helmut notices in breakout rooms that everyone struggles with the same problem): Helmut sends a chat message to all or might end all breakout room sessions for a video session with all. (If Helmut does not mess it up, should be possible to continue in the old breakout room.)
- There is no wrap-up at end of class, i.e. if you are finished with your assignment, there is no need to wait – you are welcome to leave the class.
- Typically, there are not Wednesday classes: use the time to read new slide/watch videos as preperation for next Monday.