

Assignment 4

Submit exactly 3 Isabelle files as follows. Please do not submit them in a zip file.

1)

Prove the following formulas in MiniCalc:

$$(\neg p \longrightarrow p) \longrightarrow (p \longrightarrow \neg p) \longrightarrow q$$

$$(\forall x. p\ x) \longrightarrow p\ a \wedge p\ (f\ a)$$

$$(\exists x. \forall y. r\ x\ y) \longrightarrow (\forall y. \exists x. r\ x\ y)$$

Use "Copy Result to Clipboard" as the proof.

Multiple formulas can be proved in MiniCalc using the style in the files MiniCalc_Exercises_1.thy and MiniCalc_Exercises_1_Solutions.thy given in DTU Learn.

Make sure that the "theory" command imports MiniCalc and remember the "end" command at the end.

Also make sure that Isabelle processes the whole file without errors.

Do not submit files like MainProof.thy or MiniCalc.thy given in DTU Learn.

2)

Prove the formulas listed above in 1) in Pure_HOL using the style in the files Pure_HOL_Exercises.thy and Pure_HOL_Exercises_Solutions.thy given in DTU Learn.

Make sure that the "theory" command imports Pure_HOL and remember the "end" command at the end.

Also make sure that Isabelle processes the whole file without errors.

Do not submit files like Pure_HOL.thy given in DTU Learn.

3)

Solve exercise 3.5 in the "Programming and Proving in Isabelle/HOL" tutorial.

Please try to keep each line shorter than 100 characters.

Make sure that the "theory" command imports Main and remember the "end" command at the end.

Also make sure that Isabelle processes the whole file without errors.