

Recent advances in software engineering 32039

Laboratory exercises: Week 6

Question 1 Start **bondi**. Make sure that the type system is on.

Produce typed **bondi** programs corresponding to the following λ -terms.

1. $\lambda x.x + 1$
2. $\lambda x.x + 1.1$
3. $\lambda x.x + (1, 2.2)$

Does the operation $+$ have a simple typing? Discuss.

Question 2 Evaluate

1. `3 plusint 4`
2. `3.3 plusfloat 4.4`
3. `fun x y -> x plusint y`
4. `fun x y -> x plusfloat y`
5. `fun x y -> x + y`

Type variables will be considered next week.

Question 3 Produce typed **bondi** programs corresponding to the following pattern-matching functions. Note that **bondi** only supports static patterns at present. Also, every case must begin with a `|`.

1. `Pair x y -> x`
2. `Pair x y -> y`
3. `Pair x y -> xplusint y`
4. `Pair x y -> xplusfloat y`
5. `Pair x y -> x + y`
6. `Pair 0 y -> y | Pair x y -> x + y + 1`
7. `Nil -> 0 | Cons 2 y -> 1`