Programming Paradigms 2025

Session 12 : Catching up again

Preparing for the session

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Tuesday 25 November 2025 – Catching up again

We will use this session for re-visiting topics from sessions 9, 10 and 11. Also see if you can solve the preparation problems.

The preparation problems

1. Earlier in the course, we saw how one can declare an algebraic datatype for onions. Here it is again.

   ```
   data Onion  a = Core a | Layer Onion deriving Show
   ```

   We saw how to define Onion to be a functor. Now define it to be an applicative functor and a monad.

2. What does this piece of code do? Which monad is involved? Explain!

   ```
   plop f [] = return []
   plop f (x:xs) = do
                       y <- f x
                       ys <- plop f xs
                       return (y:ys)
   ```