

Assignment Project Exam Help

<https://eduassistpro.github.io/>

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CSE, UNSW (and Data6)

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The IO Type

A **procedure** that performs some side effects, returning a result of type `a` is written as

`IO a`

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World interpretation

`IO a` is an abstra

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(that's how it's implemented in GHC)

```
(>>=) :: IO a -> (a -> IO b) -> IO b
pure   :: a -> IO a
```

```
getChar :: IO Char
readLine :: IO String
putStrLn :: String -> IO ()
```

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Two-player Tic-Tac-Toe

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Example

Simple two-play

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State Monads

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```
newtype State s a = State (s -> (s, a))
```

State Monad

```
get  :: State s s  
put  :: s -> State s ()  
modify :: (s -> s) -> State s ()
```

Here we use a monadic interface to simplify the passing of our state. We don't need to manually plumb data around.

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Tic-Tac-Toe A.I

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Example

Adding A.Is for Tic

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QuickChecking Monads

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QuickCheck lets u

ce:

```
monadicIO :: PropertyM IO ()
pre       :: Bool -> PropertyM IO ()
assert    :: Bool -> PropertyM IO ()
run       :: IO a -> PropertyM IO a
```

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Testing a Tic-Tac-Toe A.I

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Example

Testing A.Is for Tic

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Homework

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① Next week is fl

② Last week's

③ The fourth p
days).

④ This week's quiz is also up (it's due Friday week (in 16 days).

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Consultations

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- Poll on Piazza
- Tomorrow
- Link on course
- Make sure to join the queue on Hopper. Be ready to share you (ghci or stack repl) and editor set up

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