What are Haskell's case rules?

Variables begin with a lowercase letter.

Type names begin with an uppercase letter.

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Give the comment syntax.

-- comment out the rest of the line.

```
{- multiline comment -}
(nesting is allowed)
```

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Haskell

Describe Haskell's Boolean types?

True and False are of type Bool.

The type is strict, only admitting those two literals.

What are the Boolean operators?

Equality/Inequality?

&&, ||, not

'==` and `/=`

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Haskell's math operators have types that are ...

Haskell

... strict, since there's no coercion. They have integer and floating point versions.

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Haskell

Convert Float to Int.



CIS 554

Haskell

Convert a Char to an Int and back.

ord :: Char -> Int chr :: Int -> Char

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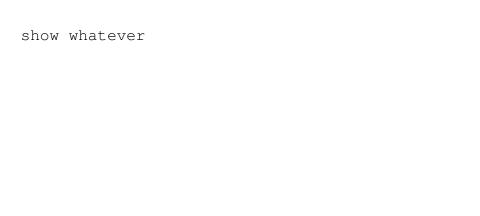
Haskell

What is a string, really?

A list of Chars, that is, [Char].

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Get string representations of objects.



Make a prefix operator infix.

Make an infix operator prefix.

Surrounding an identifier with back ticks makes it infix.

Surrounding an operator with parens makes it prefix.

Haskell

Index a list.

Test for membership.

```
ghci> ['a', 'b', 'c'] !! 0
'a'
elem, notElem
```

1

Remove duplicates in a list.

Haskell

Concatenate two lists.

nub

concat

Access the elements of a 2-tuple.

fst, snd

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Haskell

What is the range syntax?

[a..b] is a list of all the values from a to b, inclusive.

[a..] is an infinite list from a up.

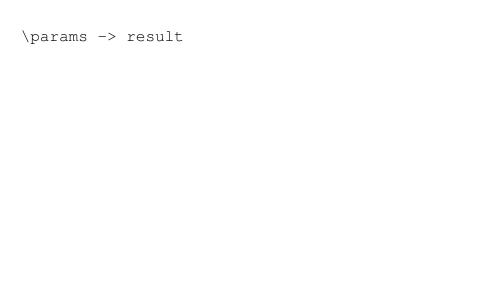
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What is the syntax of list comprehensions?

[expr | generatorOrGuard1, ..., generatorOrGuardN]

Guards are just expressions that result in Bool. No if is used.

How are lambdas written?



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How are new variables introduced?

expression where declarations

let declarations in expressions

The expression can have multiple new variables in it.

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How are case expressions introduced?

```
case expr1 of
  expr2 -> ...
  expr3 -> ...
```

CIS 554

How are function guards introduced?

Haskell

```
func params =
  | boolean1 -> ...
  | boolean2 -> ...
```

CIS 554 Haskell

What is a lazy data structure?

What's an easy way to make them in Clojure?

A data structure whose parts don't exist until they are accessed.

iterate takes a function ${\tt f}$ and a starting value ${\tt n}$ and produces a lazy infinite series:

```
(n, f(n), f(f(n)), f(f(f(n))), ...)
```

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Haskell

What does the & mean in a function signature?

It comes before a vararg, which is available as a list in the body.

Describe do.

(do exprs*)

Evaluates the expressions in order and returns the value of the last. CIS 554 Haskell

Describe list comprehension syntax.

(for seq-exprs body-expr)

Takes a vector of one or more binding-form/collection-expr pairs, each followed by zero or more modifiers, and yields a lazy sequence of evaluations of expr.

Supported modifiers are: :let [binding-form expr ...], :while test, :when test.

CIS 554 Haskell

How do you partially apply functions?

Use partial, followed by a function and fewer than the normal number of arguments.

```
user=> (def equals5 (partial = 5))
#'user/equals5
user=> (equals5 5)
true
```

Access the elements of a tuple.

fst **and** snd