Functional Programming | FP

Summary

CONTENTS

1. FUNCTIONAL LANGUAGE

Term	*Definition*
Functional programming	Style of programming with the focus on application of functions to arguments
Functional language	Languages that encourage functional programming

1.1. ALGEBRA

TODO: ...

– Equational reasoning
– Proving correctness of programs

2. HASKELL

2.1. FUNCTION DEFINITION

```haskell
funName :: (TypeBound a) ⇒ a → b  -- type definition
funName x = show x                -- implementation
```

2.2. FUNCTION APPLICATION

```haskell
sum [1..5]
```

2.3. TYPES

A Type in Haskell is a name for a collection of related values.

2.4. TYPECLASSES

```haskell
-- TODO
```

2.4.1. Functor

2.4.2. Applicative

2.4.3. Monad

2.5. LAZY EVALUATION

2.6. EQUATIONAL REASONING

2.7. LIST COMPREHENSION

2.8. TODO:

– Effectful functions
– Dependent typing
– Mutable state + parallel programming

3. LAMBDA CALCULUS

– Alonzo Church