# Golang Notes

Sabrina Jiang

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# Contents

# 1 Basics

- Packages

  - Programs start running in package `main`
  - Can also import packages using the below syntax

    ```
    import (
        "fmt"
        "math/rand"
    )
    ```

  - Exported names are **capitalized** (e.g. `Pi` is exported from the package `math`)

- Functions

  - Basic Function Syntax

    ```
    func [functionName]([varOneName], [varTwoName] [varOneAndTwoType], [etc]
        return [thing here]
    }
    ```

    * A return statement without arguments will return all named variables

- Variable Declaration

  - Variables can be declared without a type (e.g. `var c`)
  - Variables that are initialised must have a type (e.g. `var i int = 2`)
  - Variables can also be declared with the `:=` shorthand (e.g. `k := 3`)
  - Constants cannot be declared with `:=`
  - Variables declared with types but no values are initialized with zero values (`0` for numeric, `false` for boolean, `""` for strings)
  - You can convert between types by using the type as a function (e.g. from `int` to `float64`, use `float64(i)`)