- Extend the functionality of VHDL:
  - Define types, functions, components, overloaded operators.
  - Standard libraries make portability easier!

```
library IEEE;
use IEEE.numeric_bit.all;
use IEEE.numeric_std.all;
```

**Anatomy of VHDL code:**

```
library Library #1

Package #1
- Functions
- Procedures
- Types
- Constants
- Components

Package #2
- Functions

...More...

Library #2
```

- Architecture #1
  - Behavioral
    - Concurrent statements
    - Process
    - Sequential statements
  - Structural
```

Architectures #1:
- RTL
- Dataflow
Confignations

- Blinds a component instance to an entity-architecture pair!

Entity decl. + Architecture declaration = design entity, top-level

Same design entity = same chip package

Entity declaration

Architecture Body (chip die)

SOCKETS = components

- Configuration:
  - selects one architecture from many architectures of
  one design entity for instantiation (specify which die goes in the package of the chip that will be plugged into socket on PCB!)

Example:

configuration CONFIG_1 of DESIGN-EXAMPLE_1 is

  for DES-EX-STRUCTURAL
    for SOCK_1 use
      entity NAND2 (ARCH_1)
      end for;
    end for;
    for SOCK_2 use
      entity NAND2 (ARCH_5)
      end for;
  end configuration CONFIG_1;