

Structures

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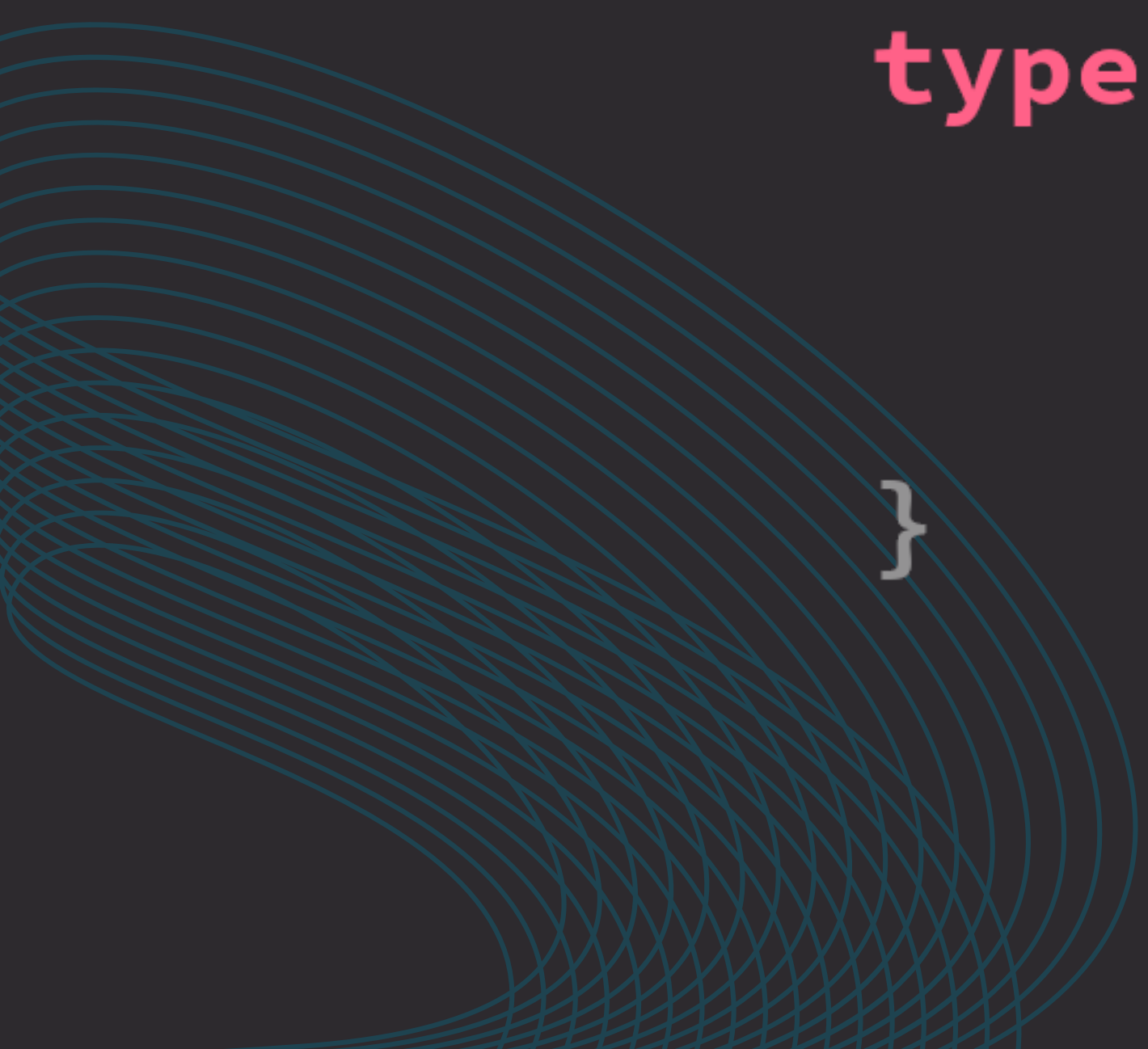
Anonymous Structures

Overview

- | Structures allow data to be stored in groups
 - | Similar to a "class" in other programming languages
 - | Each data point in the structure is called a **field**
 - | Storing data in groups is usually more efficient
- | Possible to associate functionality with structures
 - | Helps organize code and data

Defining a Structure

```
type Sample struct {  
    field string  
    a, b int  
}
```



Instantiating a Structure

```
data := Sample{"word", 1, 2}
```

```
data := Sample{  
    field: "word",  
    a:     1,  
    b:     2,  
}
```

```
type Sample struct {  
    field string  
    a, b  int  
}
```

Default Values

- | Any fields not indicated during instantiation will have default values

```
data := Sample{}
```

```
data := Sample{a: 5}
```

```
type Sample struct {  
    field string  
    a, b int  
}
```


Accessing Fields

- | Fields can be read from and written to

```
word := data.field
```

```
a, b := data.a, data.b
```

```
data.field = "hello"
```

```
data.a = 10
```

```
data.b = 20
```

```
data := Sample{  
    field: "word",  
    a:     1,  
    b:     2,  
}
```

Anonymous Structures

- | It's possible to create anonymous/inline structures inside of a function
- | Useful when working with library functions or when shipping data across a network
 - | Can easily define the data structure as-needed

Anonymous Structures

- | Inline structs created using `var` will have default values
- | Shorthand version must have each field defined

```
var sample struct {  
    field string  
    a, b int  
}
```

```
sample.field = "hello"  
sample.a = 9
```

```
sample := struct {  
    field string  
    a, b int  
}{  
    "hello",  
    1, 2,  
}
```


Recap

- | Structures are used to group similar data
 - | Data points are called **fields**
- | Structures defined using a type alias
- | Fields can be accessed using dot-notation
- | Any fields not present during instantiation are set to defaults
- | Inline/anonymous structures can be created within functions