IF140303-Web Application Development

Session-04:
Maps and Keyword Lists in Elixir

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Overview of Maps in Elixir

- Maps are key-value data structures in Elixir.
- Keys can be of any type, allowing for flexible data representation.
- Useful for representing structured data.

Creating and Accessing Maps


```
1    iex> colors = %{primary: "red"}
2    iex> colors.primary
3    "red"
```

- Maps are created using the % syntax.
- Access map values using the dot notation or via keys.

Pattern Matching with Maps

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```
1  iex> colors = %{primary: "red", secondary: "blue"}
2  iex> %{secondary: secondary_color} = colors
3  iex> secondary_color
4  "blue"
```

- Maps can be pattern matched to extract values.
- Allows for easy decomposition of map data.

Immutability and Updating Maps

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```
1    iex> colors = %{primary: "red"}
2    iex> colors.primary = "blue"
3    ** (MatchError) no match of right hand side value: "blue"
```

- Maps are immutable, meaning they cannot be directly updated.
- Updates require creating a new map.

Updating Maps with `put/3` and the `% |` Syntax

```
iex> colors = %{primary: "red"}
iex> colors = Map.put(colors, :primary, "blue")
iex> colors
%{primary: "blue"}

iex> colors = %{colors | primary: "blue"}
iex> colors
%{primary: "blue"}
```

- Use `Map.put/3` or the `% |` syntax to update maps.
- This creates a new map with the updated values.

Overview of Keyword Lists

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- Keyword lists are lists of key-value pairs.
- Keys must be atoms, and keys are ordered.
- Commonly used in Ecto and other Elixir libraries.

Creating and Accessing Keyword Lists

```
1    iex> colors = [{:primary, "red"}, {:secondary, "green"}]
2    iex> colors[:primary]
3    "red"
```

- Keyword lists can be accessed using the key in square brackets.
- Useful for simple, ordered collections of key-value pairs.

Updating Keyword Lists

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```
iex> colors = [primary: "red", secondary: "blue"]
iex> colors = [primary: "red", primary: "blue"]
iex> colors[:primary]
"blue"
```

- Updating a keyword list involves reassigning it with new values.
- Duplicate keys in keyword lists will result in the last value being used.

Summary

- We explored Maps and Keyword Lists in Elixir.
- We learned how to create, access, and update both data structures.
- Understanding these structures is key for working with Elixir data and using libraries like Ecto.