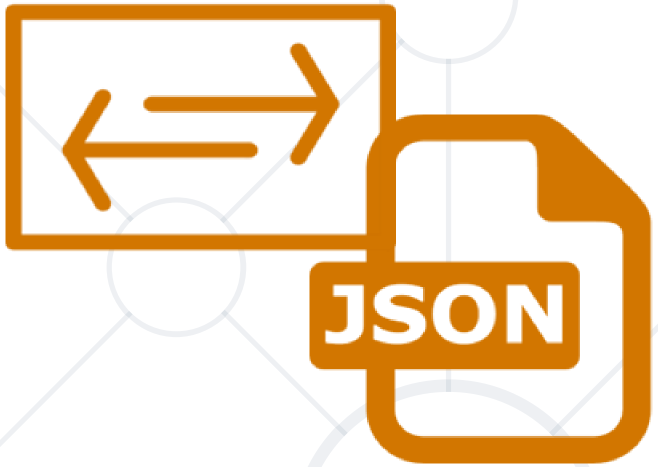
JSON

Exporting and Importing Data from JSON Format



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Questions

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#Java-DB

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JSON

Transmitting Data Objects Via Attribute-value Pairs

JSON

- JavaScript Object Notation
  - Human-readable format to transmit **data objects** consisting of **attribute–value pairs** and **arrays**
  - Subset of JavaScript syntax
- Supports several data types:
  - Number, String, Boolean, Array, Object, null

JSON Example

person.json

```
{
  "firstName": "Daniel",
  "lastName": "Sempre",
  "age": 24,
  "isMarried": true
}
```

Key

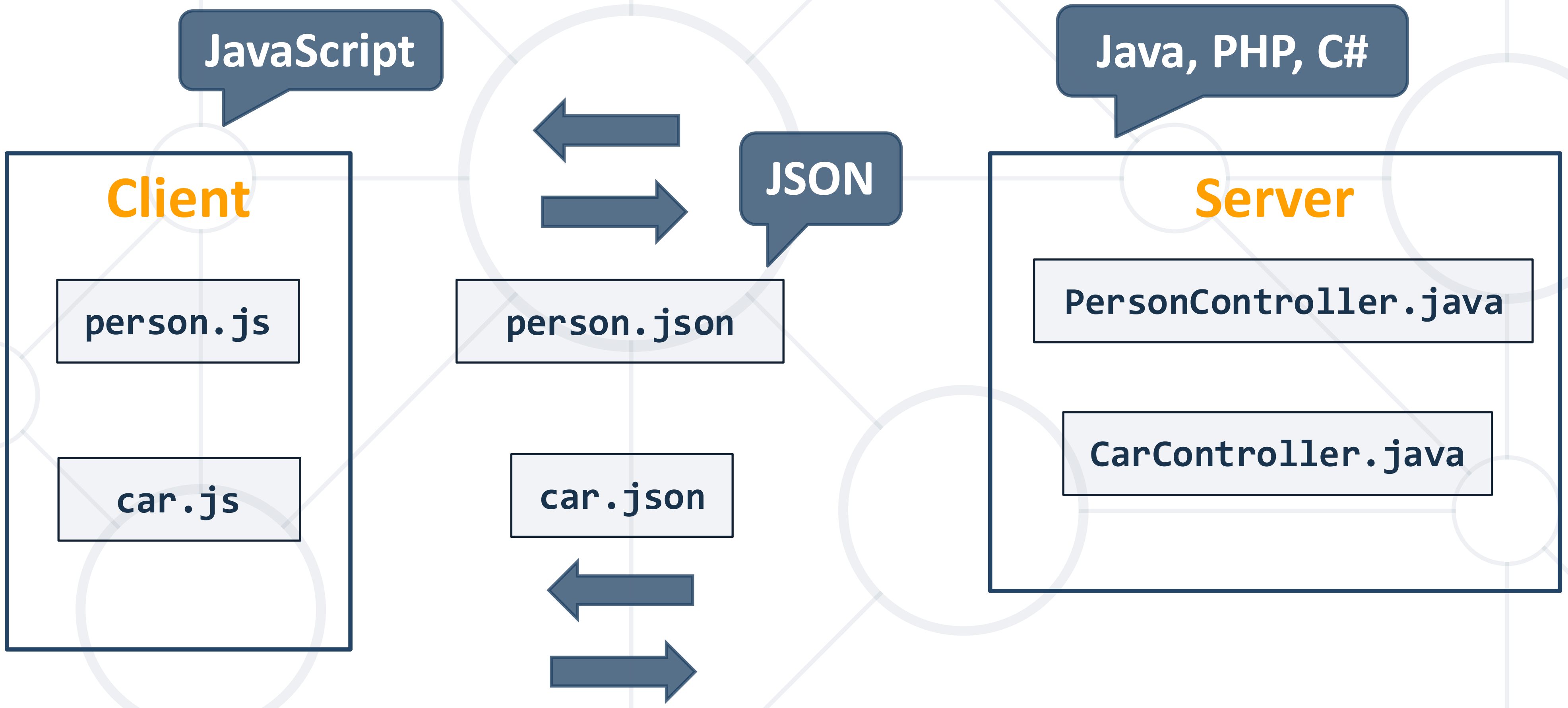
Value

student.json

```
{
  "firstName": "Daniel",
  "lastName": "Sempre",
  "age": 24,
  "courses": [
    {
      "name": "Java DB",
    },
    {
      "name": "HTML",
    },
  ]
}
```

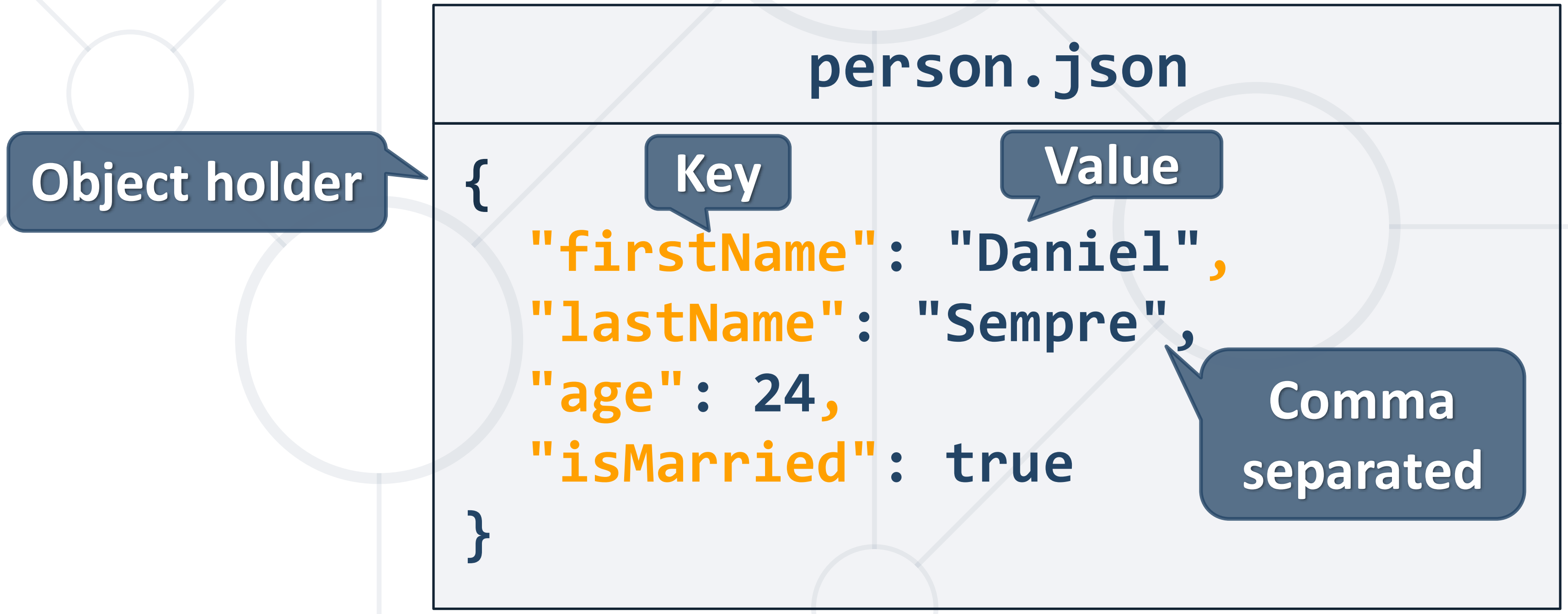
Array type value

JSON Function



JSON Structure

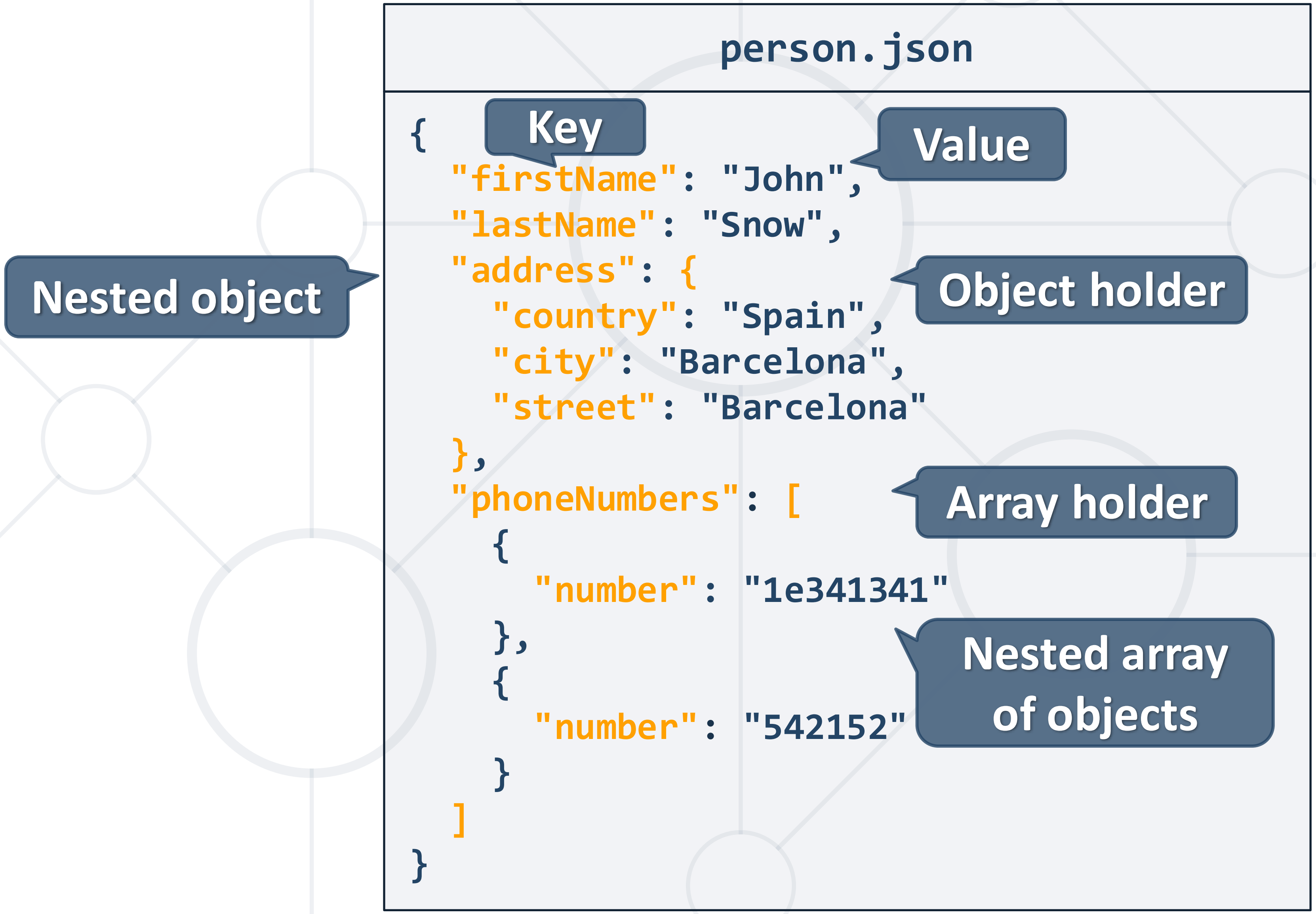
- Data is represented in **name/value** pairs
- Curly braces hold objects
- Square brackets hold **arrays**



person.json

```json
{
  "firstName": "Daniel",
  "lastName": "Sempre",
  "age": 24,
  "isMarried": true
}
```

JSON Structure


person.json

```
{
  "firstName": "John",
  "lastName": "Snow",
  "address": {
    "country": "Spain",
    "city": "Barcelona",
    "street": "Barcelona"
  },
  "phoneNumbers": [
    {
      "number": "1e341341"
    },
    {
      "number": "542152"
    }
  ]
}
```

GSON

Serialize and De-serialize objects with Java

GSON

- Provides easy to use mechanisms to convert **Java to JSON** and vice-versa
  - Originally developed by Google
- Generates compact and readability JSON output

pom.xml

```
<dependency>
            <groupId>com.google.code.gson</groupId>
            <artifactId>gson</artifactId>
</dependency>
```

GSON Initialization

- Gson objects are responsible for the JSON manipulations
  - GsonBuilder creates an instance of GSON
  - **`excludeFieldsWithoutExposeAnnotation()`** – excludes fields without **`@Expose`** annotation
  - **`setPrettyPrinting()`** – aligns and justifies the created JSON format
  - **`create()`** – creates an instance of Gson

GSON Initialization

JsonParser.java

```
Gson gson = new GsonBuilder()
                 .excludeFieldsWithoutExposeAnnotation()
                 .setPrettyPrinting()
                 .create();
```

Export Single Object to JSON

AddressJsonDto.java

```
public class AddressJsonDto implements Serializable {
    @Expose
    private String country;
    @Expose
    private String city;
    @Expose
    private String street;
}
```

The field will be imported/exported

JsonParser.java

```
AddressJsonDto addressJsonDto = new AddressJsonDto();
addressJsonDto.setCountry("Bulgaria");
addressJsonDto.setCity("Sofia");
addressJsonDto.setStreet("Mladost 4");
String content = this.gson.toJson(addressJsonDto);
```

Creates JSON

Export Single Object to JSON

JsonParser.java

```java
AddressJsonDto addressJsonDto = new AddressJsonDto();
addressJsonDto.setCountry("Bulgaria");
addressJsonDto.setCity("Sofia");
addressJsonDto.setStreet("Mladost 4");
String content = this.gson.toJson(addressJsonDto);
```

address.json

```json
{
  "country": "Bulgaria",
  "city": "Sofia",
  "street": "Mladost 4"
}
```

Export Multiple Object to JSON

JsonParser.java

```java
List<AddressJsonDto> addressJsonDtos = new ArrayList<>();
addressJsonDtos.add(addressJsonDtoBulgaria);
addressJsonDtos.add(addressJsonDtoSpain);
String content = this.gson.toJson(addressJsonDtos);
```

addresses.json

```json
[
  {
    "country": "Bulgaria",
    "city": "Sofia",
    "street": "Mladost 4"
  },
  {
    "country": "Spain",
    "city": "Barcelona",
    "street": "Las Ramblas"
  }
]
```

Import Single Object to JSON

AddressJsonDto.java

```java
public class AddressJsonDto implements Serializable {

    @Expose
    private String country;

    @Expose
    private String city;

    @Expose
    private String street;
}
```

The field will be imported/exported

JsonParser.java

```java
AddressJsonDto addressJsonDto =
                this.gson.fromJson("/files/input/json/address.json", AddressJsonDto.class);
```

Import Single Object to JSON

AddressJsonDto.java

```java
public class AddressJsonDto implements
Serializable {

    @Expose
    private String country;

    @Expose
    private String city;

    @Expose
    private String street;
}
```

address.json

```json
{
  "country": "Bulgaria",
  "city": "Sofia",
  "street": "Mladost 4"
}
```

Import Multiple Object to JSON

JsonParser.java

```
AddressJsonDto[] addressJsonDtos =
                  this.gson.fromJson("/files/input/json/addresses.json", AddressJsonDto[].class);
```

Object Array

addresses.json

```
[
  {
    "country": "Bulgaria",
    "city": "Sofia",
    "street": "Mladost 4"
  },
  {
    "country": "Spain",
    "city": "Barcelona",
    "street": "Las Ramblas"
  }
]
```

Summary

- JSON is a very easy to use and understand format
- GSON is a java library to operate with JSON files
  - Easy import and export

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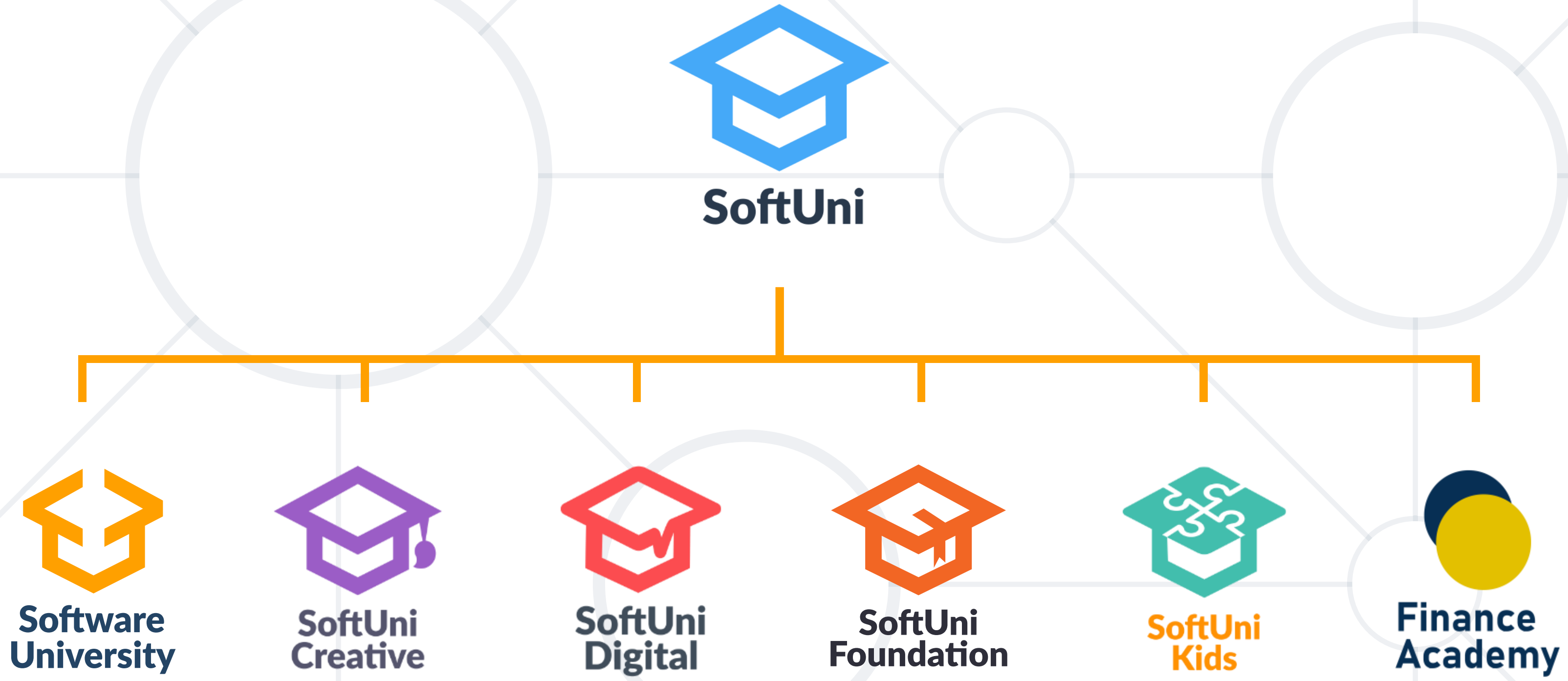
Questions?



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