

IS113 - Web Application Development

Week 10

Sections G4/G5

K. J. Shim

Agenda Today

- Classes & Objects
 - **Recap:** Class definition & creating objects
 - Data Access Object (DAO)

Go to your **webroot**

- Go to eLearn -> Content -> Session 10 -> In Class → **week10.zip**
- Unzip **week10.zip** such that you have the following directory structure locally:

```
webroot -  
|-- is113  
|   |-- week10  
|       |-- pet  
|           |-- data2.php  
|           |-- data3.php  
|           |-- display1.php  
|           |-- display2.php  
|           |-- display3.php  
|           |-- Pet.php  
|       |-- person  
|           |-- data1.php  
|           |-- data2.php  
|           |-- display1.php  
|           |-- display2.php  
|           |-- Person.php  
|           |-- testPerson.php  
|           |-- BusyPerson.php  
|           |-- testBusyPerson.php  
|           |-- PersonDAO.php  
|           |-- testPersonDAO.php
```

Exercise 1

pet

So far...

display1.php

```
$fruits = [ 'apple', 'orange', 'pear' ];  
...  
...
```

```
if( isset($_POST['age']) {  
    $age = $_POST['age'];  
    ...  
}
```

```
<html>  
...  
  
<table border='1'>  
    <tr>  
        <td> ...  
    </td>  
</table>  
...
```

Store Data

e.g. Arrays

Form Processing

e.g. form validation

Display Data

e.g. Lists, Table, Images...

/is113/week10/pet/**display1**.php

display1.php

- Store **all pets' data** in a **multi-dimensional Array**
- List all **pets** in an HTML table
- Does NOT contain any data
- It simply **displays** pets

**QUIZ
TIME!**

Complete Task 1

/is113/week10/pet/**display1.php**

/is113/week10/pet/display1.php

/is113/week10/pet/display1.php

Name	Type	Gender	Age
Okja	Super Pig	Female	3
King Kong	Gorilla	Male	5
Bailey	Beluga Whale	Male	7

Going forward...

data2.php

```
$fruits = [ 'apple', 'orange', 'pear' ];  
...  
...
```

Store Data

e.g. Arrays

display2.php

```
if( isset($_POST['age']) ) {  
    $age = $_POST['age'];  
    ...  
}
```

Form Processing

e.g. form validation

```
<html>  
...  
<table border='1'>  
    <tr>  
        <td> ...  
    </td>  
</tr>  
</table>  
...
```

Display Data

e.g. Lists, Table, Images...

/is113/week10/pet/**display2.php**

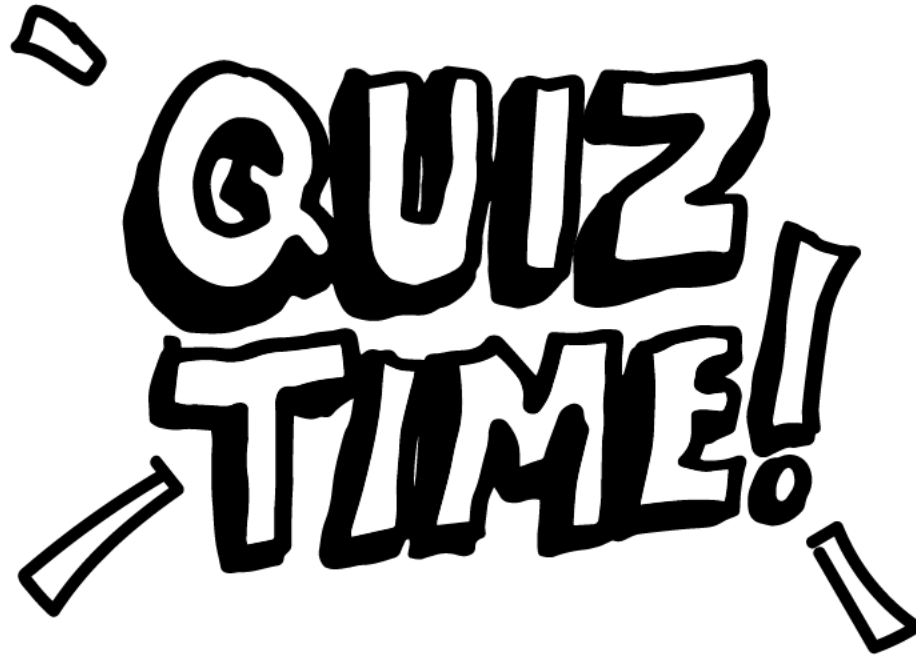
data2.php

- Store **all pets' data** in a **multi-dimensional Array**
- Makes the **Array** available to whoever that needs to display **pets' data**.

requires

display2.php

- List all **pets** in an HTML table
- Does NOT contain any data
- It simply **displays** pets



**QUIZ
TIME!**

Complete Task 2 & Task 3
</is113/week10/pet/display2.php>

/is113/week10/pet/display2.php

/is113/week10/pet/display2.php

Name	Type	Gender	Age
Okja	Super Pig	Female	3
King Kong	Gorilla	Male	5
Bailey	Beluga Whale	Male	7

Wait ... a second...

/is113/week10/pet/**data2.php**

```
$petsArr = [
```

```
  [
    'name'    => 'Okja',
    'type'    => 'Super Pig',
    'gender'  => 'Female',
    'age'     => 3
  ],
```

Pet #1

```
  [
    'name'    => 'King Kong',
    'type'    => 'Gorilla',
    'gender'  => 'Male',
    'age'     => 5
  ],
```

Pet #2

```
  [
    'name'    => 'Bailey',
    'type'    => 'Beluga Whale',
    'gender'  => 'Male',
    'age'     => 7
  ]
];
```

Pet #3

All 3 **pets** have **common properties** (attributes):

1. name
2. type
3. gender
4. age

Class

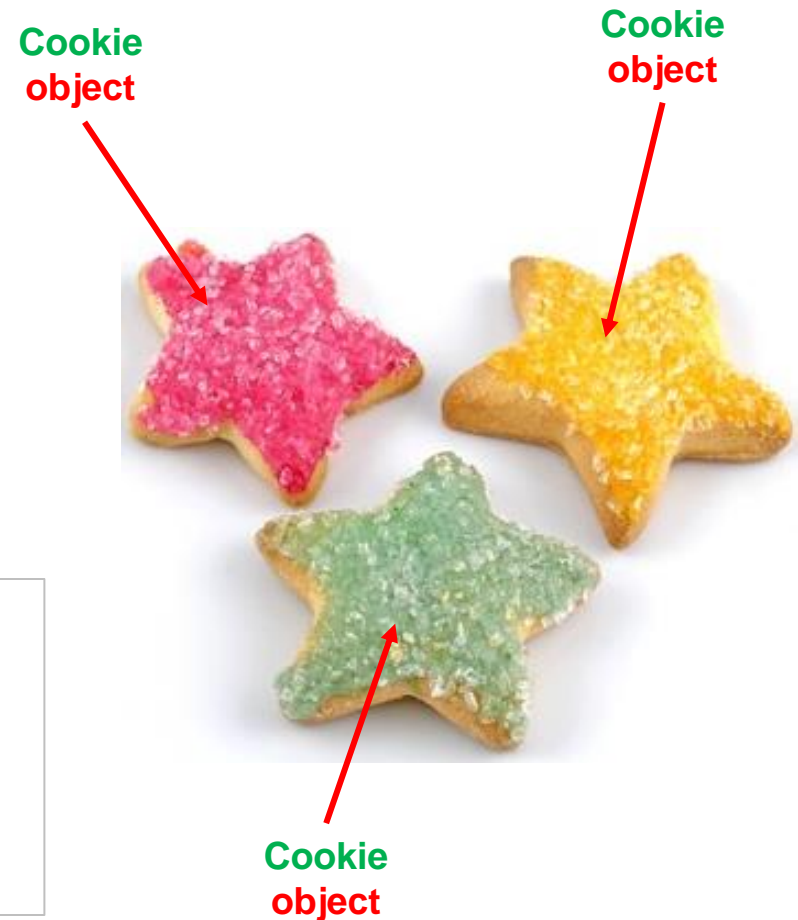
- It's a **template** from which individual **objects** are created



Cookie Cutter

Defines what a **cookie** (object) should have and can do:

1. **shape** → *star-shaped*
2. **thickness** → *about 1 centimeter (may slightly vary from cookie to cookie)*
3. **greet** → *when pressed, a cookie says "Hello World"*



Pet



okja:Pet

name Okja

type Super Pig

gender Female

age 3

+ hungry()

+ snore()

Pet object

Pet
<ul style="list-style-type: none">- name- type- gender- age
<ul style="list-style-type: none">+ hungry()+ snore()

template



kingkong:Pet

name King Kong

type Gorilla

gender Male

age 5

+ hungry()

+ snore()

Pet object

Solution #2

Pet.php

- Provides **definition** of what a **pet** should be
- This file alone does NOT give us any actual **pets**

requires

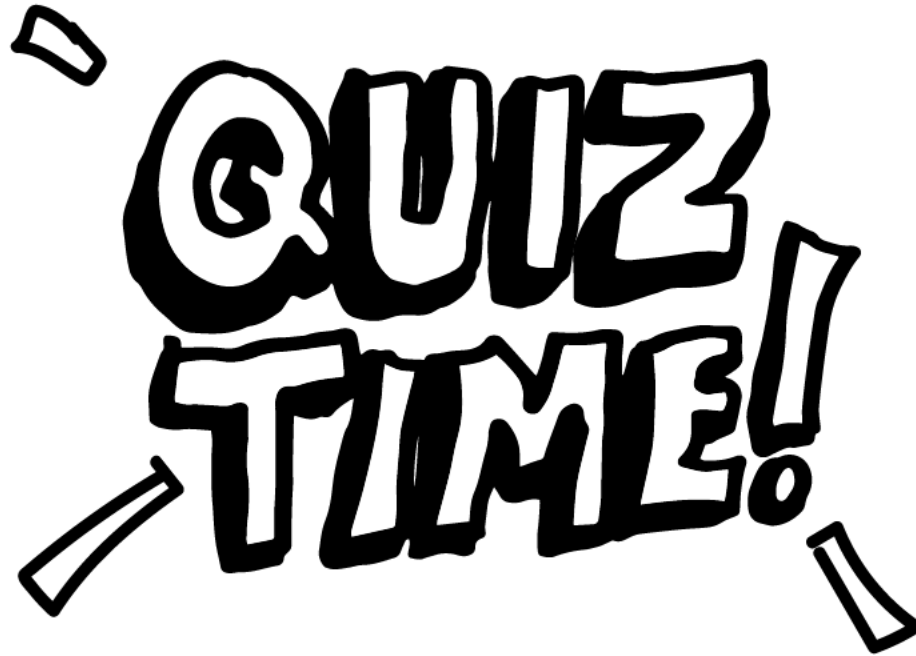
data3.php

- Borrows the **pet definition** from Pet.php
- Creates **new pets** (“Pet objects”)
- Stores the **new pets** in a **data structure** (e.g. Array)
- Makes the **Array** available to whoever that needs to display **pets**

requires

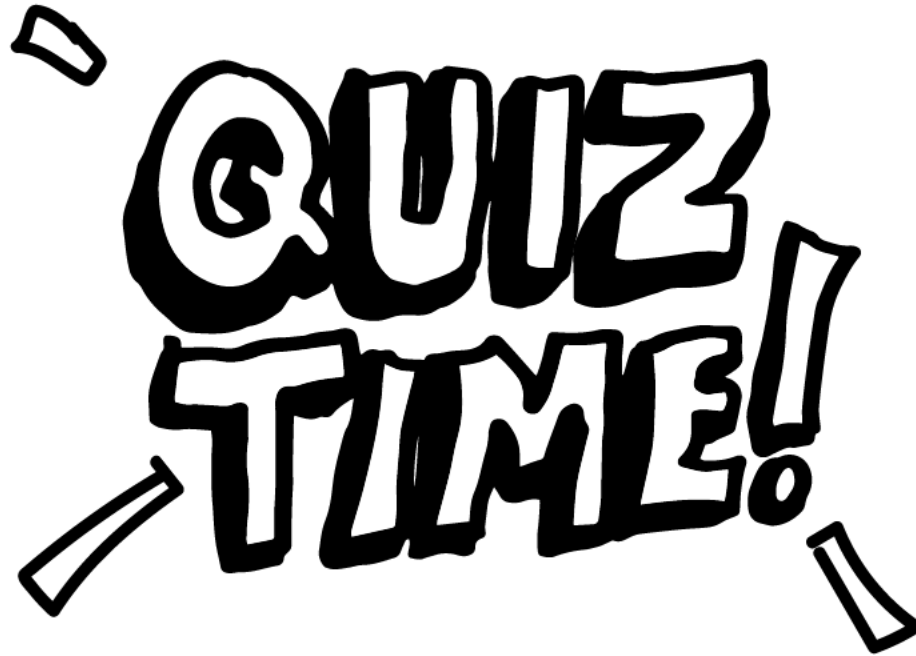
display3.php

- List all **pets** in an HTML table
- Does NOT contain any data
- It simply **displays** pets



**QUIZ
TIME!**

Complete Task 4 & Task 5
</is113/week10/pet/data3.php>



**QUIZ
TIME!**

Complete Task 6 & Task 7
</is113/week10/pet/display3.php>

/is113/week10/pet/display3.php

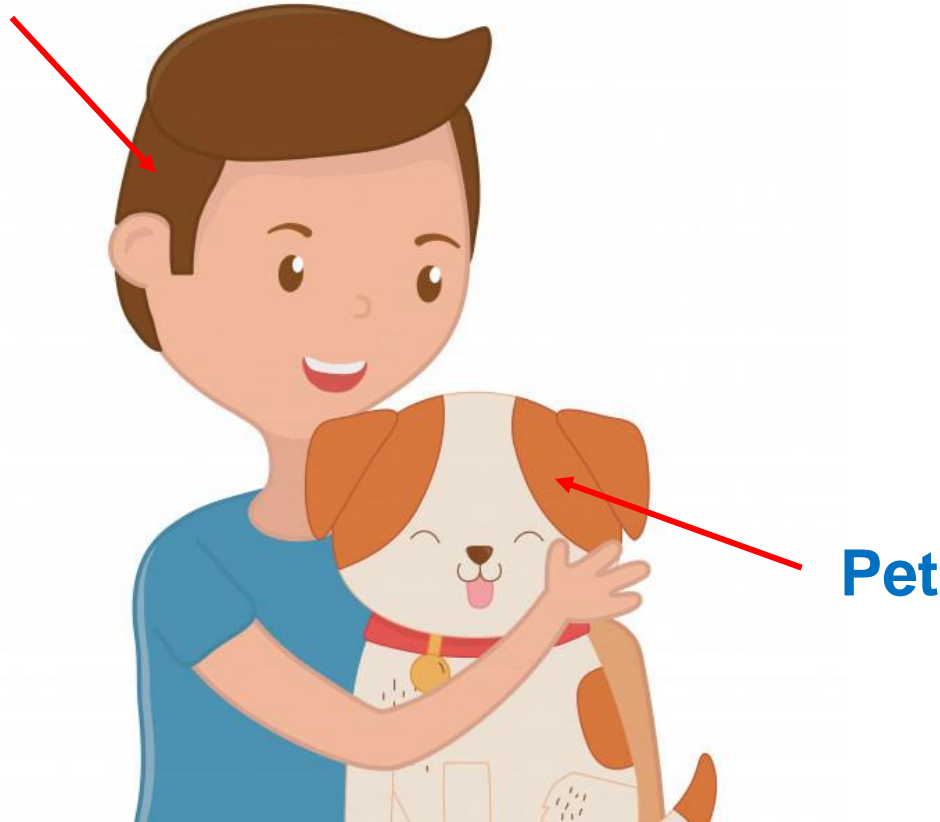
/is113/week10/pet/display3.php

Name	Type	Gender	Age	Hungry Sound	Snore Sound
Okja	Super Pig	Female	3	Hungrry Hungrry Hungrry	Ggrrr Ggrrr Ggrrr
King Kong	Gorilla	Male	5	Hungrry Hungrry Hungrry Hungrry Hungrry	Ggrrr Ggrrr Ggrrr Ggrrr Ggrrr
Bailey	Beluga Whale	Male	7	Hungrry Hungrry Hungrry Hungrry Hungrry Hungrry Hungrry	Ggrrr Ggrrr Ggrrr Ggrrr Ggrrr Ggrrr Ggrrr

Exercise 2

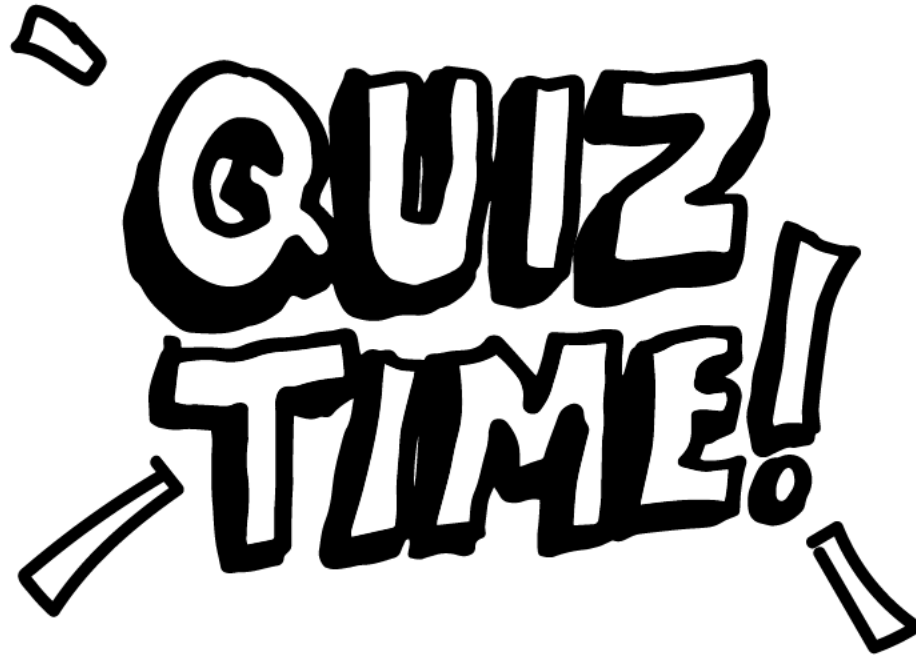
pet & person

Person



Pet

*Each **Person** can have ONE **Pet***



**QUIZ
TIME!**

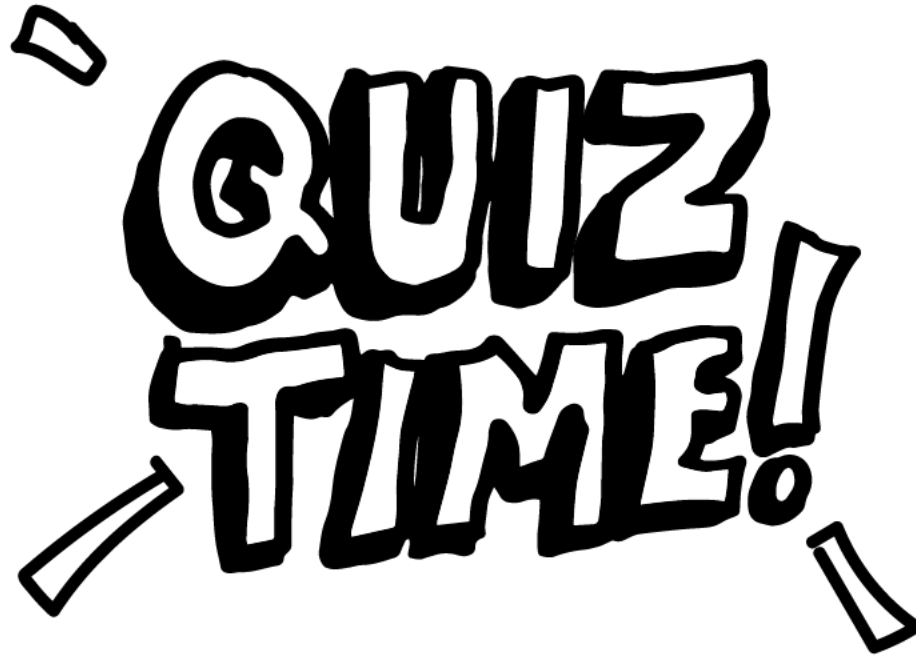
Complete Task 1

/is113/week10/person/**display1.php**

/is113/week10/person/display1.php

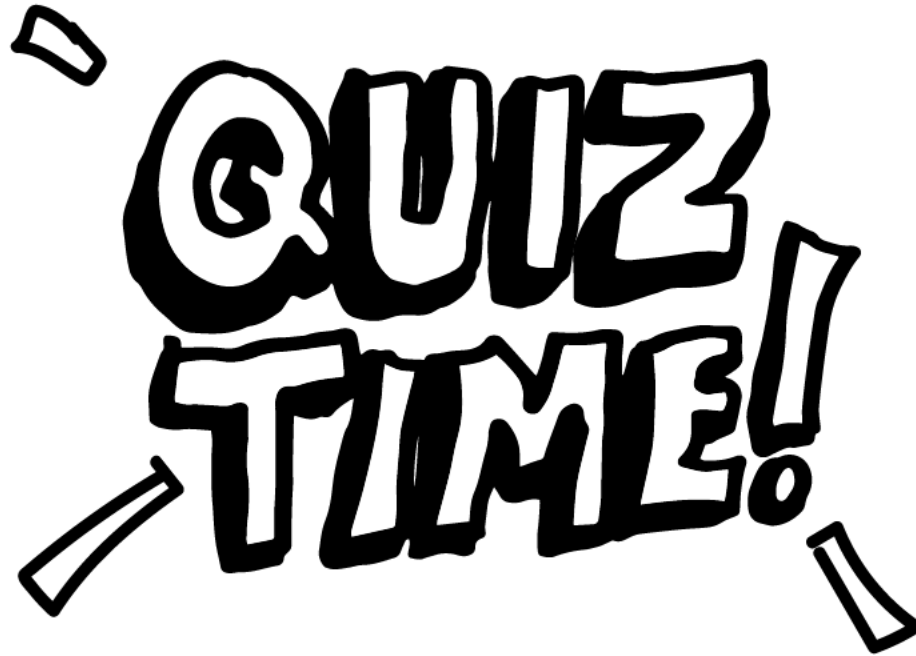
/is113/week10/person/display1.php

Person Fullname	Person Gender	Pet Details
Bogum	M	<ul style="list-style-type: none">• Okja• Super Pig• Female• 3
Sooji	F	<ul style="list-style-type: none">• King Kong• Gorilla• Male• 5
Hyun Bin	M	<ul style="list-style-type: none">• Bailey• Beluga Whale• Male• 7



**QUIZ
TIME!**

Complete Task 2 & Task 3
</is113/week10/person/data2.php>



**QUIZ
TIME!**

Complete Task 4

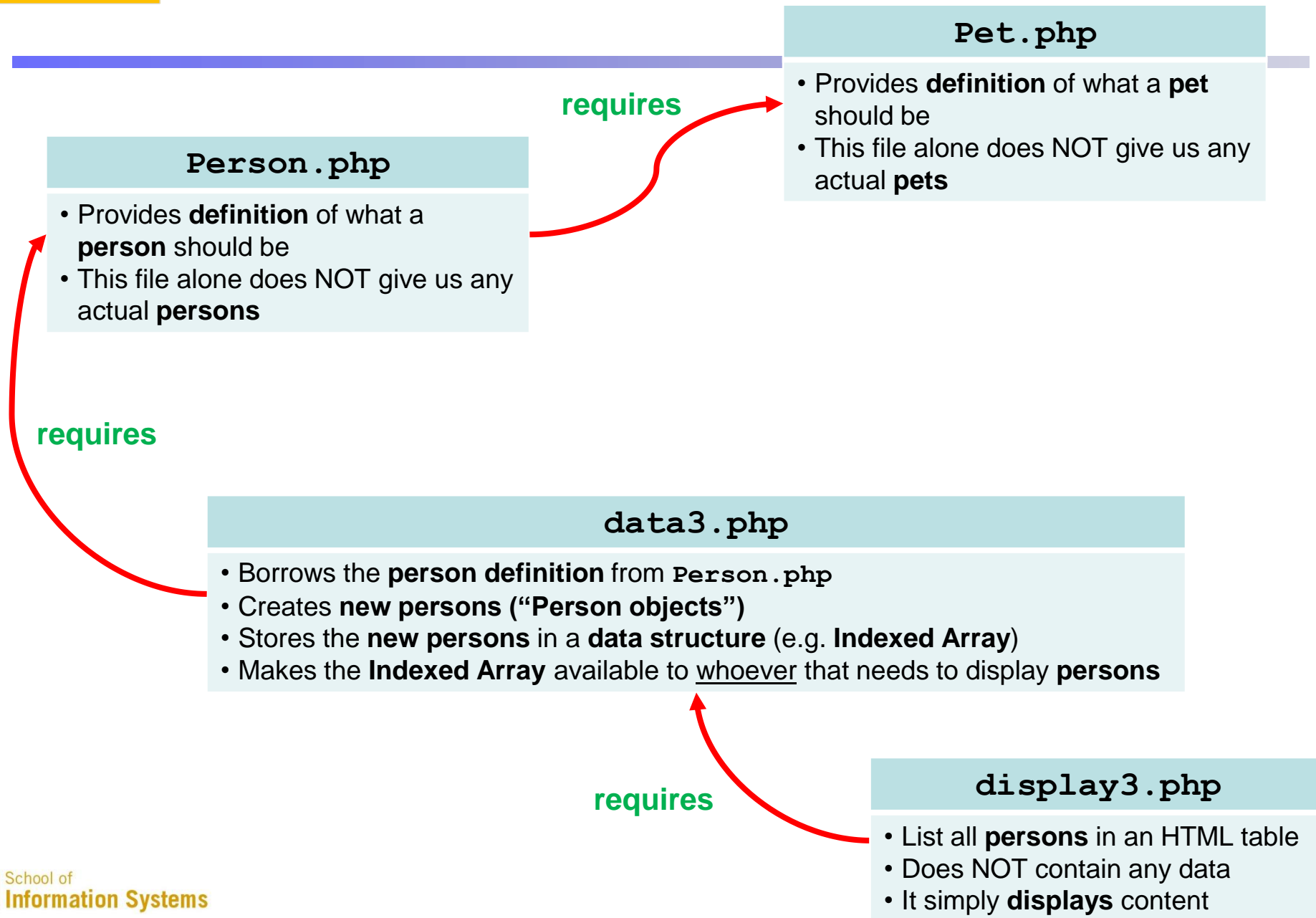
/is113/week10/person/**display2.php**

/is113/week10/person/display2.php

/is113/week10/person/display2.php

Person Fullname	Person Gender	Pet Details
Bogum	M	<ul style="list-style-type: none">• Okja• Super Pig• Female• 3
Sooji	F	<ul style="list-style-type: none">• King Kong• Gorilla• Male• 5
Hyun Bin	M	<ul style="list-style-type: none">• Bailey• Beluga Whale• Male• 7

Solution #3



Person

Person
- name - gender - pet
+ greet()

template



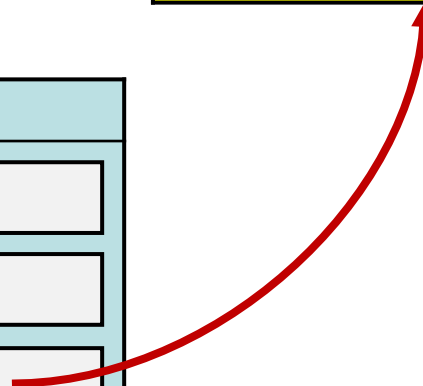
*Person
object*

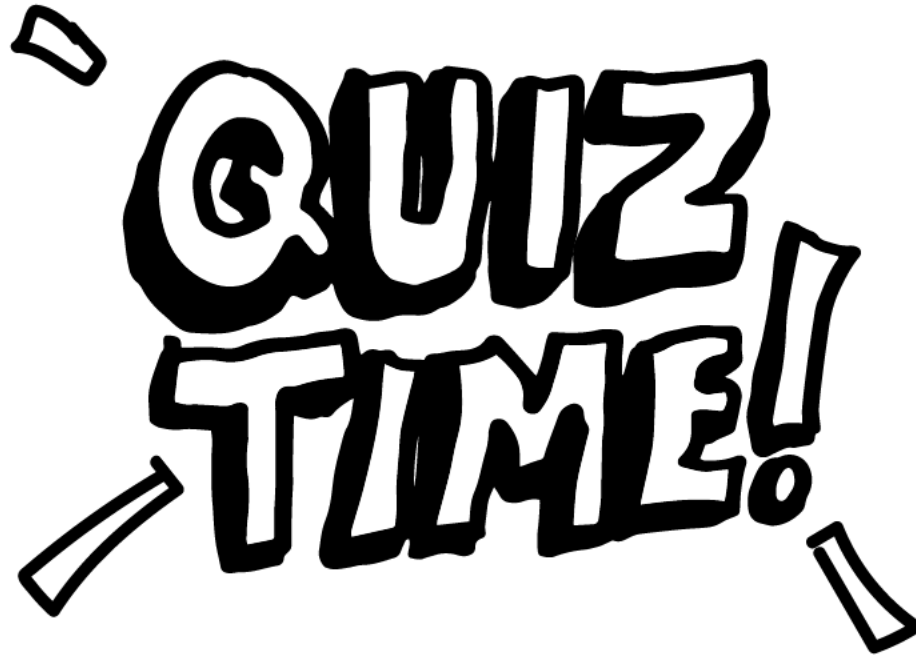
bogum:Person	
name	Bogum
gender	M
pet	
+ greet()	

okja:Pet	
name	Okja
type	Super Pig
gender	Female
age	3
+ hungry() + snore()	



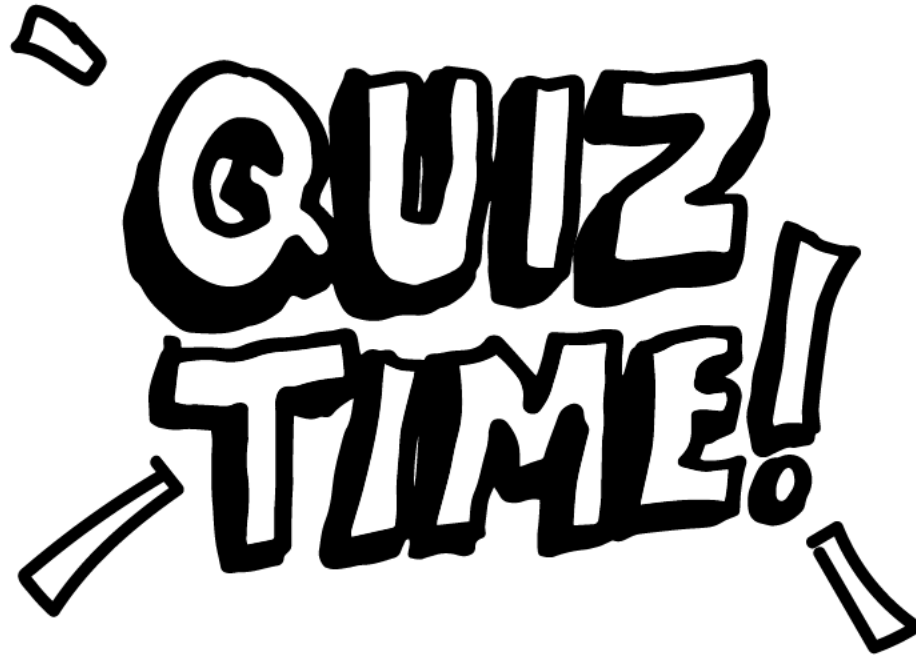
Pet object





**QUIZ
TIME!**

Complete Task 5 & Task 6
</is113/week10/person/Person.php>



**QUIZ
TIME!**

Complete Task 7

/is113/week10/person/testPerson.php

BusyPerson

BusyPerson	
- name	
- gender	
- pets	
+ greet()	

template

Pet object

okja:Pet	
name	Okja
type	Super Pig
gender	Female
age	3
+ hungry() + snore()	



Pet object

bong:Pet	
name	Bong
type	Rat
gender	Male
age	1
+ hungry() + snore()	

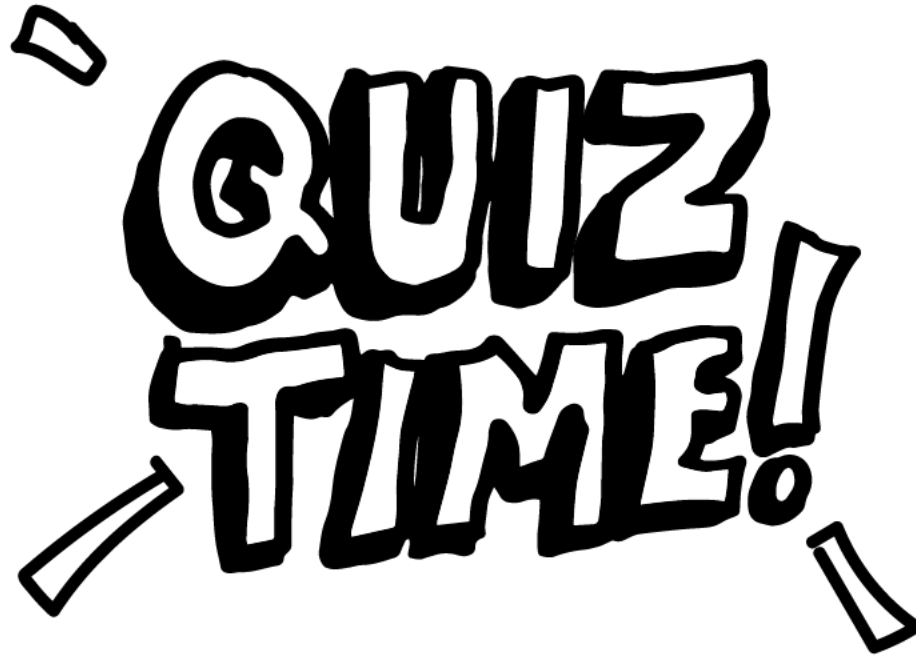


*BusyPerson
object*

bogum:BusyPerson	
name	Bogum
gender	M
pet	
+ greet()	

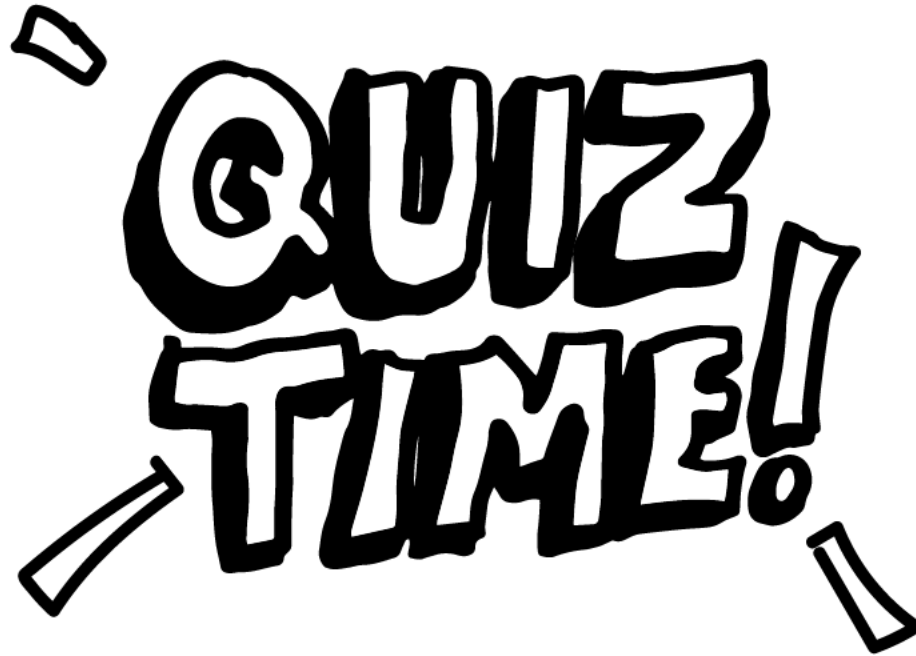
Indexed Array





**QUIZ
TIME!**

Complete Task 8 & Task 9
</is113/week10/person/BusyPerson.php>

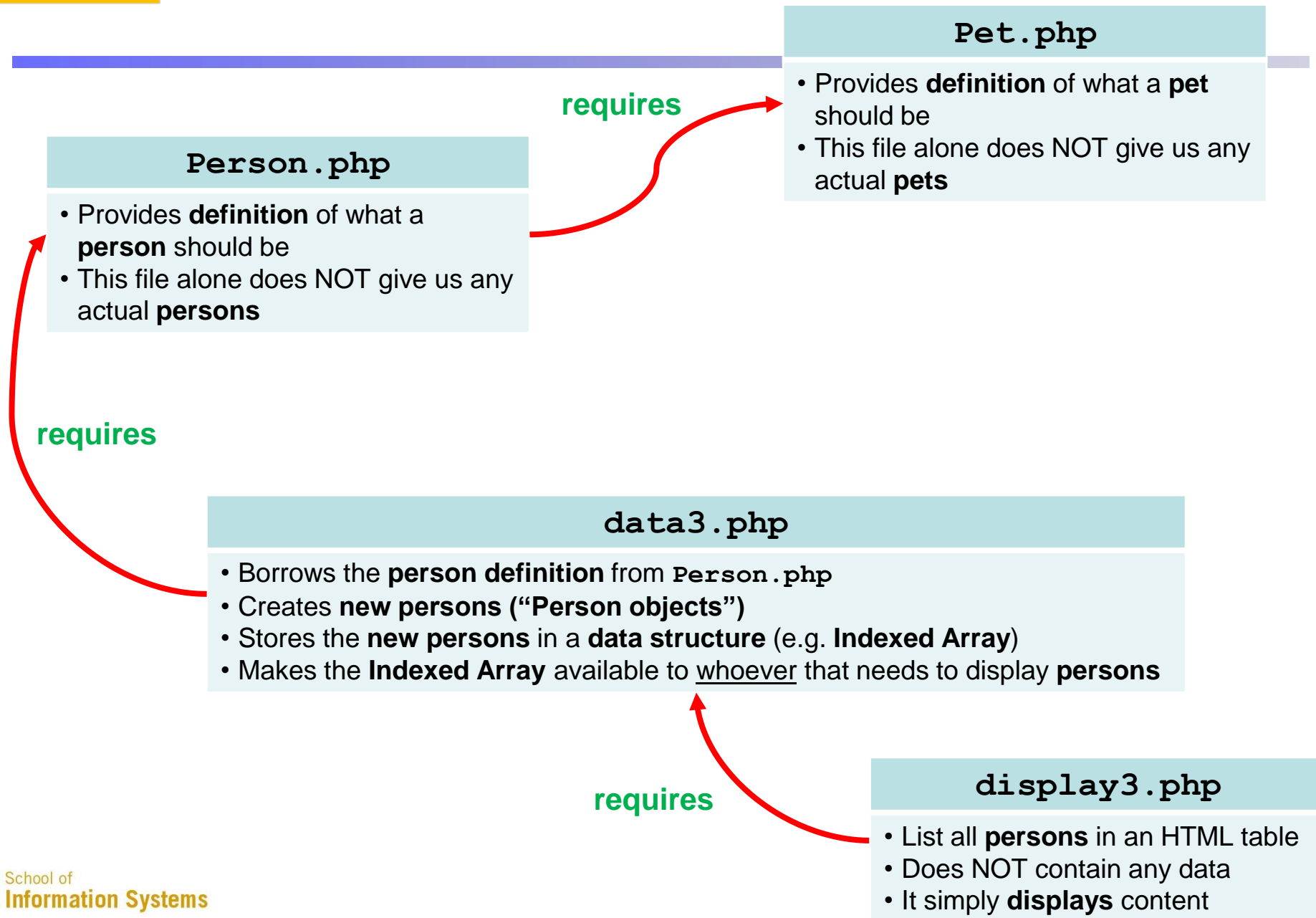


**QUIZ
TIME!**

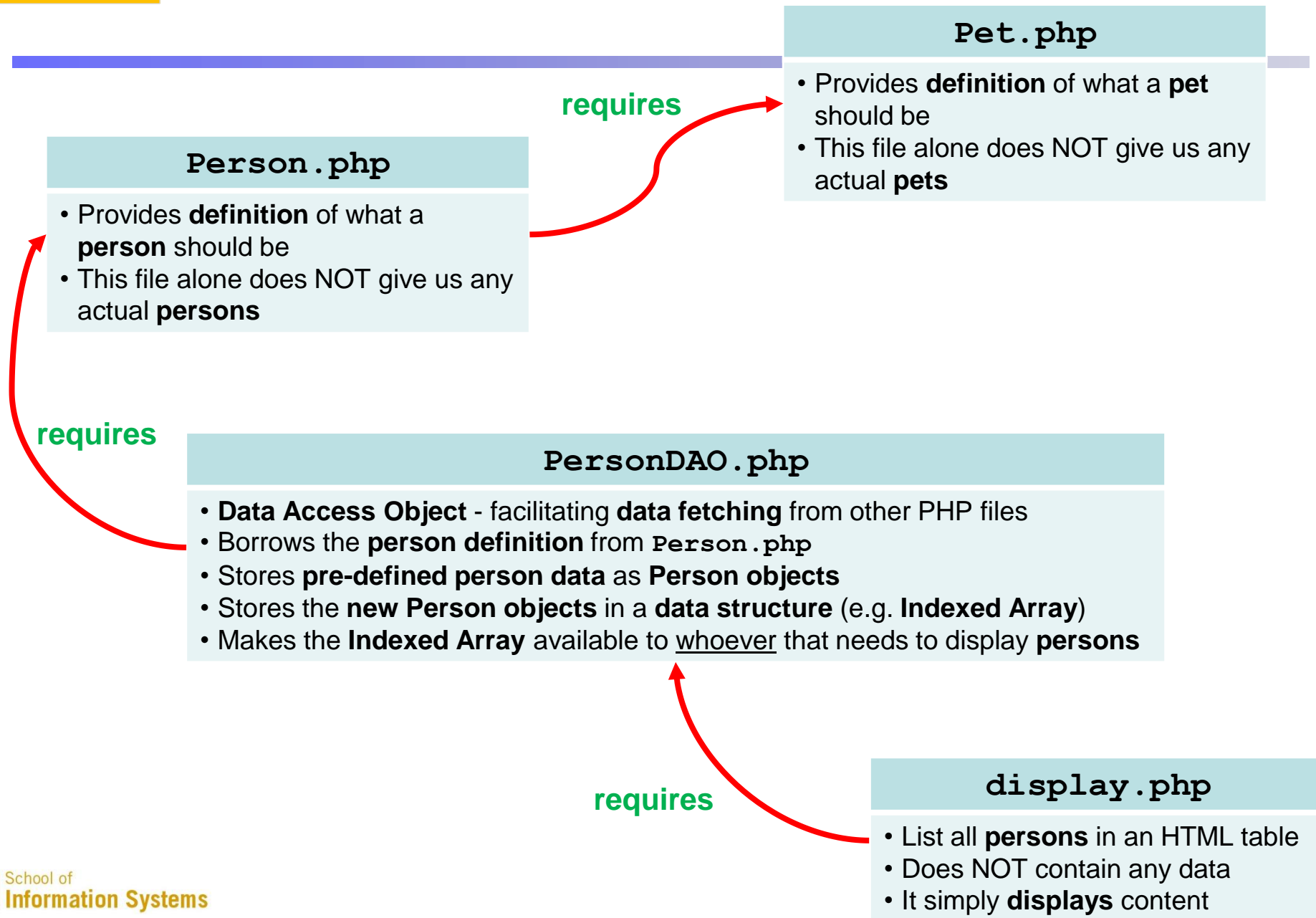
Complete **Task 10**

/is113/week10/person/**testBusyPerson.php**

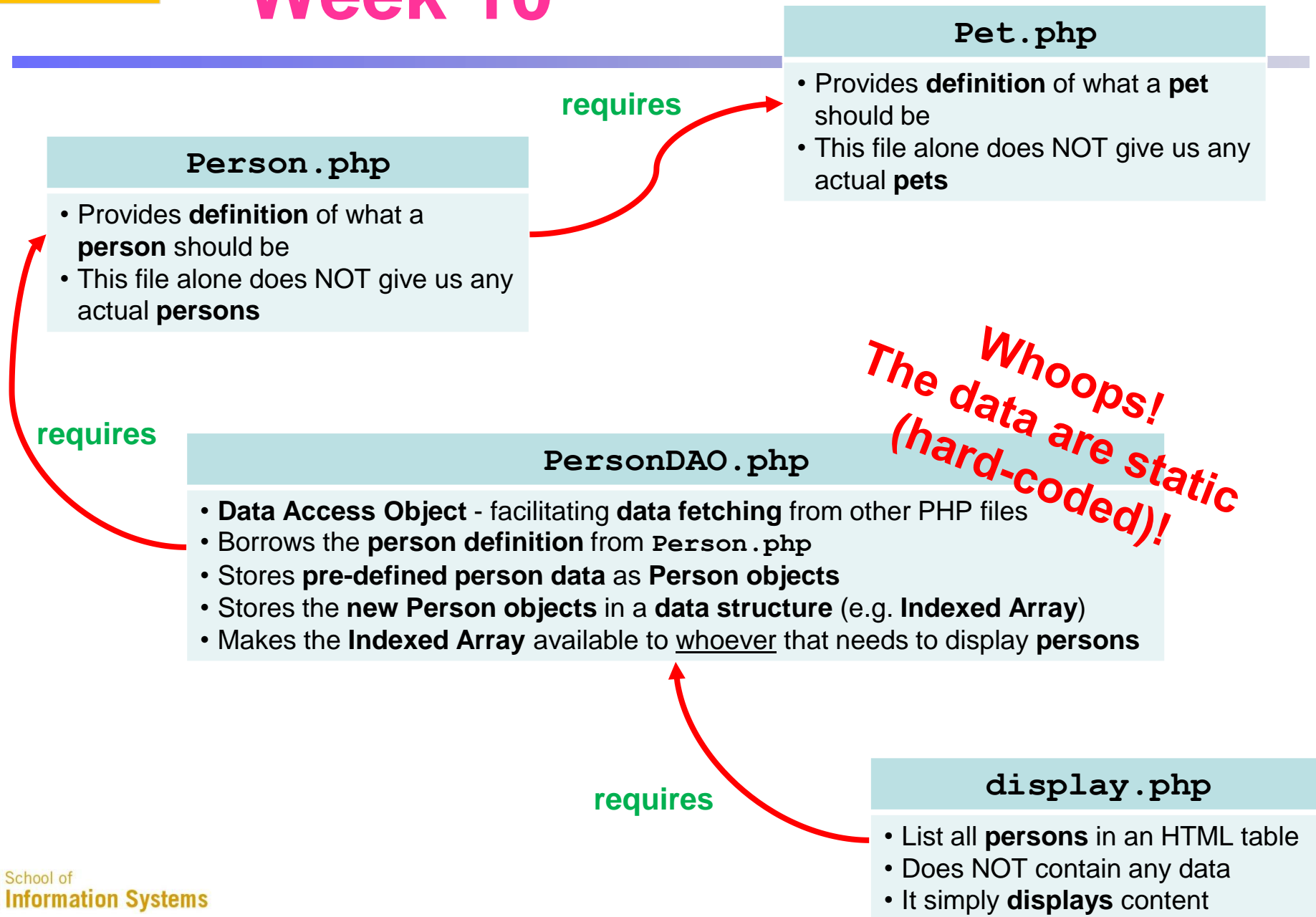
Solution #3



Solution #4



Week 10



Week 11

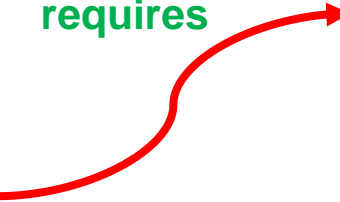
Person.php

- Provides **definition** of what a **person** should be
- This file alone does NOT give us any actual **persons**

Pet.php

- Provides **definition** of what a **pet** should be
- This file alone does NOT give us any actual **pets**

requires



requires



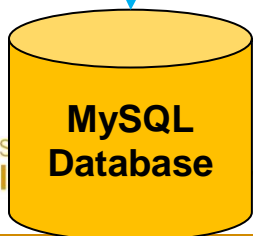
PersonDAO.php

- **Data Access Object** - facilitating **Database SQL Query**-ing
- Borrows the **person definition** from **Person.php**
- Queries **Database** (e.g. `SELECT * from person`) & stores query results (e.g. `pets`) in **new Person objects**
- Stores the **new Person objects** in a **data structure** (e.g. **Indexed Array**)
- Makes the **Indexed Array** available to whoever that needs to display **persons**

The data are read
from the Database
“dynamically”
(NOT hard-coded)

Interact
with

via
SQL

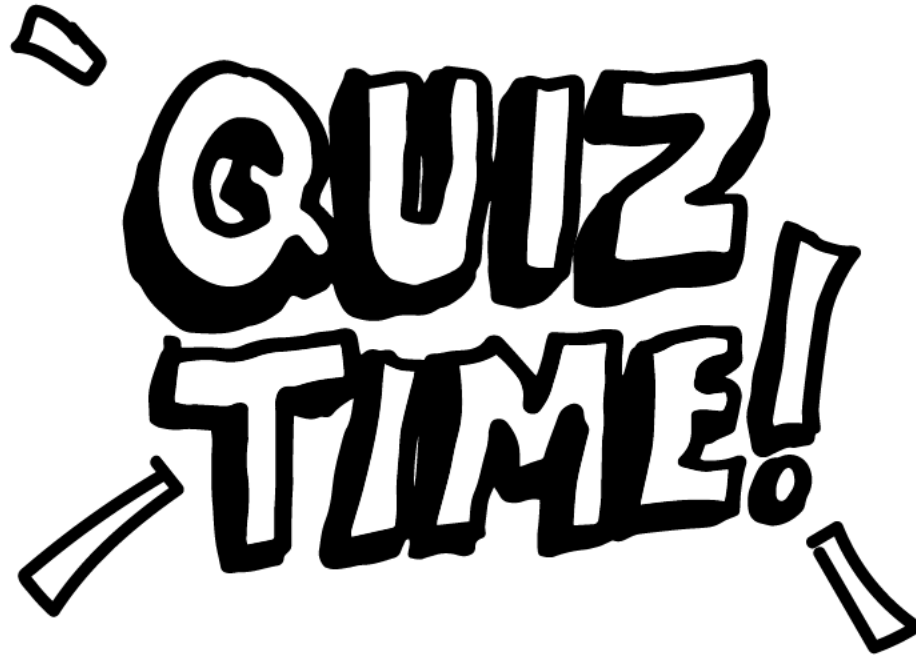


requires



display.php

- List all **persons** in an HTML table
- Does NOT contain any data
- It simply **displays** content



**QUIZ
TIME!**

Complete Task 11 & Task 12
</is113/week10/person/PersonDAO.php>

/is113/week10/person/testPersonDAO.php

Open **testPersonDAO.php** in a web browser.

Verify the output.

Week 11

- PHP Data Objects (PDO)
 - Interacting with **MySQL Database**
 - More Classes & Objects exercises

Exercises

- Try **Weeks 9-10 Exercises:**

- <https://smu.sg/2021-spring-is113-wk9-doc> (Google Doc)

- Complete

- **Question 1** (Car)
 - **Question 2** (Drinks)
 - **Question 3** (Dating)
 - **Question 4** (Quotes)
 - **Question 5** (Basket)
 - **Question 6** (Quotes & Likes)