



## Exercise Fourteen

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14.1 Create a new Project called `exercise_14` with a package called `exercise_14`.

Create an interface called **people**

Within the interface define the following methods ...

```
set_eyes(String colour);  
set_hair(String colour);  
set_height(double height);  
set_age(int age);  
set_gender(char sex);
```

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14.2 Create a new class which implements people called `person_dets`

Create the following fields

```
String hair;  
double height;  
char sex;  
int age;  
String eye_colour;
```

Create each method outlined in `people`.

Each method will update the appropriate field from above, as the name of the instance will not be known the Developer will need to use the 'this' convention.

This is the basic structure for created a person record in the next part of the exercise.

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14.3 Create a new class called ex14\_1

Within the main() method, create a new instance of person\_dets called one, using the methods within person\_dets populate the various fields available.

Create output to print out the values of each of those fields in the one instance ...

*This person is 20 years old, has Blue eyes Red hair and is 170.5 cm tall*

**If there is sufficient time, create another instance called two and again populate its fields, repeating the above output.**

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14.4 Copy ex14\_1 to ex14\_2.

Extend ex14\_2 with person\_dets

Create a constructor of ex14\_2

Within the ex14\_2 constructor populate the person\_dets fields using the appropriate methods.

Within the main() method, create a new instance of the constructor called one, and output the values of each of those fields in the one instance ...

*This person is 20 years old, has Blue eyes Red hair and is 170.5 cm tall*

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14.5 Copy ex14\_2 to ex14\_3.

Remove the extends and the constructor but retain the creation of a new instance called one using the ex14\_2 class, note that the method still functions as before because it creates an instance of an existing class.

14.6 Create a new class called person\_details which extends person\_dets, add a new method called print\_details() which prints the contents of all the fields in the instance, remember at this point the method will not know the identity of each instance therefore the 'this' convention will need to be used.

14.7 Create a new class called ex14\_4. Create a new instance of person\_details and run the above print\_details(), because no fields have been populated in the instance the following should be the output ...

*This person is 0 years old, has null eyes null hair and is 0.0 cm tall*

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14.8 Extend the `person_details` class with a new class called `person_information`.

Create a new `print_details()` method which overrides the original found in `person_details`, output a few fields found in `person_details`.

Create another method called `original_details()`, this will run the original `print_details()` found in `person_details`. Remember to use the 'super' convention.

14.9 Copy `ex14_2` to `ex14_5`. Extend this class using `person_information`.

Within the `ex14_5` constructor, call both the `print_details()` and the `original_details()` ...

*This person has Brown hair*

*This person is 35 years old, has Brown eyes Brown hair and is 200.0 cm tall*