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# WEEK 4 – RETURNING MORE THAN ONE VALUE FROM A FUNCTION

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## Exercise 1

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An application asks for the name and score of 2 teams in a GAA match.

The application should calculate the total number of points scored by each team and determine the winning team.

Type in the main() function as follows:

```
def main():
    name_team1 = read_nonempty_alphabetical_string("Name team #1 >>> ")
    goals1, points1 = get_score(name_team1)
    total1 = calculate_total(goals1, points1)
    name_team2 = read_nonempty_alphabetical_string("Name team #1 >>> ")
    goals2, points2 = get_score(name_team2)
    total2 = calculate_total(goals2, points2)
    winning_team = determine_winning_team(name_team1, total1, \
                                         name_team2, total2)
    display_result(winning_team)
```

Now write the missing functions:

- read\_nonempty\_alphabetical\_string() – reuse (boilerplate code)<sup>1</sup>
  - Receives: prompt (question to be asked of the user)
  - Returns: a string (name of the team)
- get\_score()
  - Receives: name of a team
  - Returns: goals and points scored by that team
- calculate\_total()
  - Receives: goals, points
  - Returns: total points scored (1 goal = 3 points)
- determine\_winning\_team()
  - Receives: name and score of 2 teams (4 inputs)
  - Returns: name of winning team or the string "Draw"
- display\_result()
  - Receives: the string representing the winning team
  - Returns: None ( a void function )
  - Displays an appropriate sentence to the screen

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<sup>1</sup> You may wish to save this in a different file to be used as a module.

## Exercise 2

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Write a program that asks for the name of the student and his/her school in Hogwarts. The application should then display that student's name, school and resident ghost.

For example

```
Student's name >>> Harry Potter
1: Slytherin
2: Hufflepuff
3: Ravenclaw
4: Gryffindor
Which House >>> 4
```

Harry Potter belongs to Gryffindor which is haunted by Nearly Headless Nick

The ghosts are:

- ❖ Slytherin - The Bloody Baron
- ❖ Hufflepuff - The Fat Friar
- ❖ Ravenclaw - The Grey Lady
- ❖ Gryffindor - Nearly Headless Nick

The **main** function is:

```
def main():
    student_name = read_nonempty_alphabetical_string("Student's name >>> ")
    house = read_house() # returns 1, 2, 3 or 4
    house_name, house_ghost = get_house_details(house) # returns the house's name
    print_details(student_name, house_name, house_ghost)
```

You may re-use functions from previous programs and lectures or create and import your own module.

## Exercise 3

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Modify **get\_house\_details()** to also return

- ❖ The house mascot
  - Slytherin - Snake
  - Hufflepuff - Badger
  - Ravenclaw - Eagle
  - Gryffindor - Lion
- ❖ The number of students in a house
  - Slytherin - 198
  - Hufflepuff - 203
  - Ravenclaw - 214
  - Gryffindor - 201

And modify the **main()** and **print\_details()** to accommodate these changes.

## Exercise 4

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Develop an application to ask for and read the results of a rugby match and display the name of the winning team.

You may use functions from Exercise 1.

In a rugby match each team can score:

- tries → 5 points for a try
- conversions → 2 points for a conversion
- drop goals → 3 points for a drop goal
- penalty kicks → 3 points for a penalty kick