# Worksheet 9b – Two-dimensional lists Answers

1. **Finding the size of a 2D list**

State the outcome you would expect if you ran the code below. You SHOULD NOT run this code – write down what you expect to happen.

**filmRatings**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Reviewer 1 | Reviewer 2 | Reviewer 3 |
| **Lion** | 9.7 | 7.8 | 9.5 |
| **Transformers** | 3.7 | 6.8 | 5.2 |
| **Pirates of the Caribbean** | 6.1 | 4.9 | 7.3 |
| **Moana** | 8.2 | 7.9 | 6.7 |
| **War Games** | 7.3 | 8.1 | 7.7 |

filmRatings = [ [ “Lion” , 9.7 , 7.8 , 9.5 ] ]  
filmRatings.append( [“Transformers” , 3.7 , 6.8 , 5.2] )  
filmRatings.append( [“Pirates of the Caribbean” , 6.1 , 4.9 , 7.3] )  
filmRatings.append( [“Moana” , 8.2 , 7.9 , 6.7] )  
filmRatings.append( [“War Games” , 7.3 , 8.1 , 7.7] )

print(len(filmRatings))

5

print(len(filmRatings[0]))

4

print(len(filmRatings[1]))

4

Now try writing the program and see if you were correct.

1. **Stepping through a row**

Add to the program from Question 1 to print each value from the row about Lion (the name and the 3 ratings) one at a time. You must use a for loop to complete this.

for count in range(len(filmRatings[0])):  
 print(filmRatings[0][count])

NB: An alternative answer might be:

for count in range(4):  
 print(filmRatings[0][count])

This is less efficient as it will not cope with a list that changes size during the program, but is a possible solution for a student who is struggling to use the len() function.

Extension: Write the program so that the user can choose which row to display (0-4).

film = int(input(“Enter a film number (0-4): ”))  
for count in range(len(filmRatings[film])):  
 print(filmRatings[film][count])

1. **Stepping through a column**

Add to the program from Question 1 to print the name of each film, one at a time. You must use a for loop to complete this.

for count in range(len(filmRatings)):  
 print(filmRatings[count][0])

NB: An alternative answer might be:

for count in range(5):  
 print(filmRatings[count][0])

This is less efficient as it will not cope with a list that changes size during the program, but is a possible solution for a student who is struggling to use the len() function.

Extension: Allow the user to select a reviewer (1-3) and display the scores that reviewer has given for each film. You should also display the name of each film.

reviewer = int(input(“Enter a reviewer number (1-3): ”))  
for count in range(len(filmRatings)):  
 print(“Film:”, filmRatings[count][0])  
 print(“Reviewer Score:”, filmRatings[count][reviewer])

1. **Using a running total**

Use a running total variable to find the total reviewer score for **Lion**. Divide this by the number of reviews to get the average score. The program has been started, to help you.

total = 0  
for count in range(1,len(filmRatings[0])):  
 total = total + filmRatings[0][count]  
average = total / len(filmRatings[0])  
print(average)

***See program L9 WS9b Ex4.py***

1. **Rating reviewers**

Ask the user for the number of a reviewer (from 1-3). Calculate their average rating.

total = 0  
reviewer = int(input(“Enter the number of a reviewer(1-3): ”))  
for count in range(len(filmRatings)):  
 total = total + filmRatings[count][reviewer]  
average = total / len(filmRatings)  
print(average)

***See program L9 WS9b Ex5.py***

Extension: Display the average ratings given by each reviewer.

for reviewer in range(1, len(filmRatings[0])):  
 total = 0  
 for count in range(len(filmRatings)):  
 total = total + filmRatings[count][reviewer]  
 average = total / len(filmRatings)  
 print(average)

***See program L9 WS9b Ex5 extension.py***