

Assignment 2

by Ibrahim Balogun

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Network Programmability assignment 2



Ibrahim Balogun

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Introduction

The pursue of my code is to create a programme that will display the Premier Leagues fixtures for each week of the season. Additionally, when the matches are over the programme automatically updates and display the score and the programme will show the upcoming fixtures for the following week. The programme will perform throughout the entire Premier League season and onwards. My aim for my programme is to get it working, to a high standard so matches can be displayed.

Part 1

The first thing I did was to make sure my python programme works, and my get requests work as well, as shown in figure 1, I had to find where my Python programme is stored and enable the request, once finding where the requests are stored, I entered the command "pip install requests." this installed files that would allow my computer system to enable the requests as shown in figure 1.

```
C:\Users\ibalo\AppData\Local\Programs\Python\Python39\Scripts>pip install requests
Collecting requests
  Using cached requests-2.25.1-py2.py3-none-any.whl (61 kB)
Requirement already satisfied: chardet<5, >=3.0.2 in c:\users\ibalo\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests) (4.0.0)
Requirement already satisfied: idna<3, >=2.5 in c:\users\ibalo\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests) (2.10)
Requirement already satisfied: urllib3<1.27, >=1.21.1 in c:\users\ibalo\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests) (1.26.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\ibalo\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests) (2020.12.8)
Installing collected packages: requests
Successfully installed requests-2.25.1
WARNING: You are using pip version 20.2.3; however, version 20.3.3 is available.
You should consider upgrading via the 'c:\users\ibalo\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.
C:\Users\ibalo\AppData\Local\Programs\Python\Python39\Scripts>
```

Figure 1

Part 2

Then to test that all my libraries are working I ran a hello world test, I typed in code that when run displays "hello world" when run in figure 2. My test results can be seen in figure 3; this shows that all my libraries are working.

```
c: > Users > ibalo > Documents > Assignment 2.py
1 print("hello world")
2 |
```

Figure 2

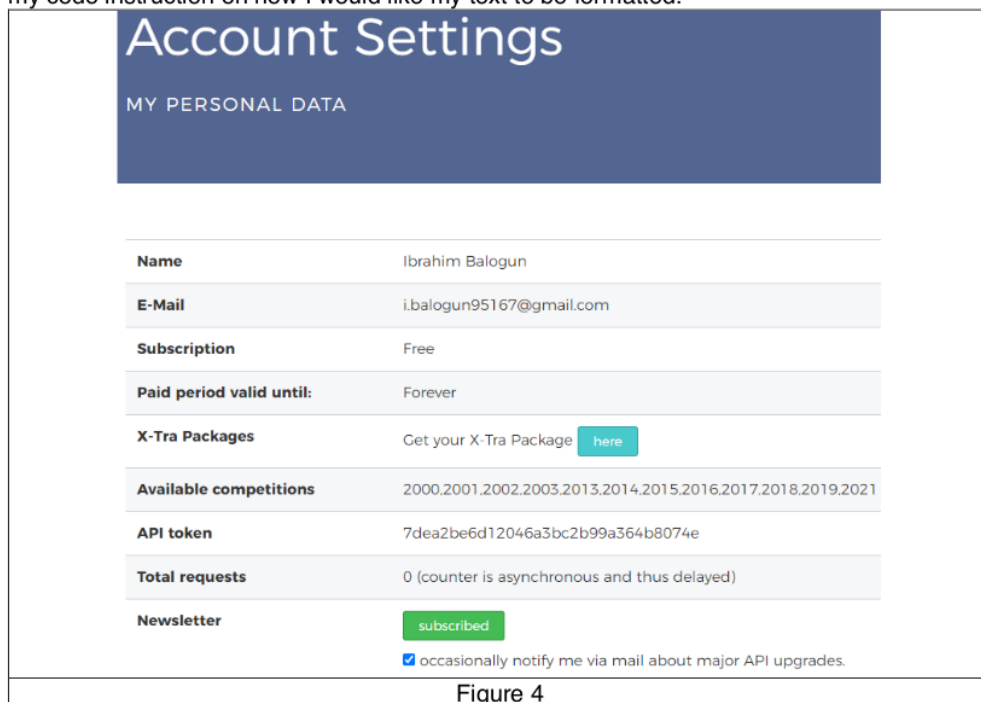
```
PS C:\Users\ibalo\Documents> & 'C:\Users\ibalo\AppData\Local\Programs\Python\Python39\python.exe' 'c:\Users\ibalo\.vscode\extensions\ms-python.python-2020.12.424452561\pythonFiles\lib\python\gpy\launcher' '52845' '--' 'c:\Users\ibalo\Documents\Assignment 2.py'
hello world
PS C:\Users\ibalo\Documents> |
```

Figure 3

Part 3

Next, I processed to create the programme, as shown in figure 5. Figure 5 shows my first attempt at creating the programme; I started by finding out where my authentication token is I used the website (<https://www.football-data.org/>) to find my token, once I was on the site I signed in, and it gave me an application programming interface token, this can be seen in figure 4. Once I have got the application programming interface token and the destination for my request, I can start writing the programme, as shown in figure 5. The reason I need to add these details in my code is so when executing the code; I can gain access to the content from the API link by using the token. Figure 6 show the results of the code, as you can see it is puzzling to read, as unnecessary information is being displayed and the way the text is

has been laid out is not that help to read, the reason this has happed is that I have not given my code instruction on how I would like my text to be formatted.

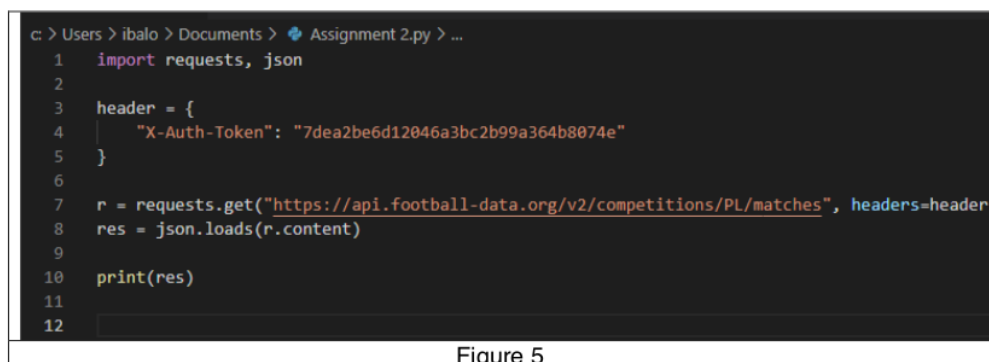


The screenshot shows a web interface for 'Account Settings' with a dark blue header. Below the header, the section 'MY PERSONAL DATA' is visible. The main content area contains a table of account details and a newsletter subscription status.

Account Settings	
MY PERSONAL DATA	
Name	Ibrahim Balogun
E-Mail	i.balogun95167@gmail.com
Subscription	Free
Paid period valid until:	Forever
X-Tra Packages	Get your X-Tra Package here
Available competitions	2000,2001,2002,2003,2013,2014,2015,2016,2017,2018,2019,2021
API token	7dea2be6d12046a3bc2b99a364b8074e
Total requests	0 (counter is asynchronous and thus delayed)
Newsletter	subscribed

☒ occasionally notify me via mail about major API upgrades.

Figure 4



The screenshot shows a Python script in a code editor. The script imports 'requests' and 'json', sets a header with an API token, and makes a GET request to the football API to fetch match data.

```
c > Users > ibalo > Documents > Assignment 2.py > ...
1 import requests, json
2
3 header = {
4     "X-Auth-Token": "7dea2be6d12046a3bc2b99a364b8074e"
5 }
6
7 r = requests.get("https://api.football-data.org/v2/competitions/PL/matches", headers=header)
8 res = json.loads(r.content)
9
10 print(res)
11
12
```

Figure 5

```
PS C:\Users\jhalo\Documents> .\Assignment2.py X
c> Users \jhalo\ Documents > Assignment2.py ...
1 import requests, json
2
3 header = {
4     "X-Auth-Token": "7dea2beed12646a3bc2b99a364b8074e"
5 }
6
7 r = requests.get("https://api.football-data.org/v2/competitions/PL/matches", headers=header)
8 res = json.loads(r.content)
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10 print(res)
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```

Figure 6

Part 4

To ensure that the formatting problem I had would not happen again, I add code that would take information about the matches, seasons, and the current match day. This can be seen in figure 7. The way I decided to let my code to work is by looping the present match day, as this can be found on the API and returning the information into the function. Once I got this, I was able to pull the match days in the URL to allow me to see the matchday. My code results can be seen in figure 8, as match details can be seen a lot clearer, without having lots of unnecessary text; however, removing the id's from the test will make it a lot cleaner, and that is what I will do next.

```
c:\Users\ibalo > Documents > Assignment 2.py > ...
1  import requests, json
2
3  header = {
4      "X-Auth-Token": "7dea2be6d12046a3bc2b99a364b8074e"
5  }
6
7  def getMatchday():
8      r = requests.get("https://api.football-data.org/v2/competitions/PL/matches", headers=header)
9      res = json.loads(r.content)
10
11      for match in res['matches']:
12          matchDay = match['season']['currentMatchday']
13
14
15      return matchDay
16
17  url = "https://api.football-data.org/v2/competitions/PL/matches?matchday={0}".format(getMatchday())
18  r = requests.get(url, headers=header)
19  res = json.loads(r.content)
20
21  for match in res['matches']:
22      print(match)
23
```

Figure 7

[illegible]

Figure 8

Part 5

In figure 9, I decided to create a way that matches would be displayed clearly with only the correct information available, which is who is playing the score and the match. I also add a system where if a match is over the scores will be displayed. I did this by creating an IF statement, so if the football matches are finished, the scores will be displayed; I used format function, as this allowed me to arrange the output from the API. Figure 10 shows the outcome of using the formatting function and the IF statement, as some games are over, yet others are still scheduled to be played, even the time and date are shown in the displayed.

```

c:\Users> python Documents > Assignment 2.py > ...
1 import requests, json, datetime
2
3 header = {
4     "X-Auth-Token": "7dea2be6d12846a3bc2b99a36488874a"
5 }
6
7 def getMatchday():
8     r = requests.get("https://api.football-data.org/v2/competitions/PL/matches", headers=header)
9     res = json.loads(r.content)
10
11     for match in res['matches']:
12         matchDay = match['season']['currentMatchday']
13
14     return matchDay
15
16
17 url = "https://api.football-data.org/v2/competitions/PL/matches?matchday={0}".format(getMatchday())
18 r = requests.get(url, headers=header)
19 res = json.loads(r.content)
20
21 for match in res['matches']:
22     if (match['status'] == "FINISHED"):
23         print("{0} vs {1} - Score: {2}(1) - {2}(2) FINISHED".format(match['homeTeam']['name'], match['awayTeam']['name'], match['score']['fulltime']['homeTeam'], match['score']['fulltime']['awayTeam']))
24     elif (match['status'] == "SCHEDULED"):
25         date = match['utcDate']
26         d = datetime.datetime.strptime(date, "%Y-%m-%dT%H:%M:%S%z")
27         print("{0} vs {1} - Kick Off: {2}".format(match['homeTeam']['name'], match['awayTeam']['name'], d.strftime("%H:%M %d-%m-%Y")))

```

Figure 9

```

PS C:\Users\ibalo\Documents> & 'C:\Users\ibalo\AppData\Local\Programs\Python\Python38-32\Scripts\python.exe' C:\Users\ibalo\Documents\Assignment 2.py
Sheffield United FC vs Newcastle United FC - Score: 1:0 FINISHED
Wolverhampton Wanderers FC vs Everton FC - Score: 1:2 FINISHED
Manchester City FC vs Brighton & Hove Albion FC - Score: 1:0 FINISHED
Arsenal FC vs Crystal Palace FC - Kick Off: 20:00 14-01-2021
West Ham United FC vs West Bromwich Albion FC - Kick Off: 18:00 19-01-2021
Leicester City FC vs Chelsea FC - Kick Off: 20:15 19-01-2021
Fulham FC vs Manchester United FC - Kick Off: 20:15 20-01-2021
Liverpool FC vs Burnley FC - Kick Off: 20:00 21-01-2021
PS C:\Users\ibalo\Documents>

```

Figure 10

Part 6

The last stage of the programme contains typically content that will have the end-user of the software; this content can be found in a ".txt" format and consists of basic instructions for the end-user. Figure 11 shows my vision of this.

```

1 # FootballFixtures
2 This program is used to show the match fixtures in Premier League for the current week.
3 I used this API: https://www.football-data.org/ to get the fixtures.
4 The games will automatically update every week.

```

Figure 11

Problems

When creating my programme, there were lots of problems I encountered many of them were basic syntax errors that were quickly corrected, some were a lot more troublesome to fix. Figure 12 shows one of the outcomes of my code, as you can see, the formatting is acceptable; however, it is a bit difficult to read, changes will need to be made to this format. Figure 13 shows another updated/ fixed version of my I made during testing to try and figure out the optimal way I would like to set out my code but still needs to be changed.

```

2020-09-12 Manchester City FC vs Aston Villa FC, Score: None:None
2020-09-12 Burnley FC vs Manchester United FC, Score: None:None
2020-09-12 Fulham FC vs Arsenal FC, Score: 0:3
2020-09-12 Crystal Palace FC vs Southampton FC, Score: 1:0
2020-09-12 Liverpool FC vs Leeds United FC, Score: 4:3
2020-09-12 West Ham United FC vs Newcastle United FC, Score: 0:2
2020-09-12 West Bromwich Albion FC vs Leicester City FC, Score: 0:3
2020-09-12 Tottenham Hotspur FC vs Everton FC, Score: 0:1
2020-09-12 Sheffield United FC vs Wolverhampton Wanderers FC, Score: 0:2
2020-09-12 Brighton & Hove Albion FC vs Chelsea FC, Score: 1:3
2020-09-12 Everton FC vs West Bromwich Albion FC, Score: 5:2
2020-09-12 Leeds United FC vs Fulham FC, Score: 4:3
2020-09-12 Manchester United FC vs Crystal Palace FC, Score: 1:3
2020-09-12 Arsenal FC vs West Ham United FC, Score: 2:1
2020-09-12 Southampton FC vs Tottenham Hotspur FC, Score: 2:5
2020-09-12 Newcastle United FC vs Brighton & Hove Albion FC, Score: 0:3
2020-09-12 Chelsea FC vs Liverpool FC, Score: 0:2
2020-09-12 Leicester City FC vs Burnley FC, Score: 4:2
2020-09-12 Aston Villa FC vs Sheffield United FC, Score: 1:0
2020-09-12 Wolverhampton Wanderers FC vs Manchester City FC, Score: 1:3
2020-09-12 Brighton & Hove Albion FC vs Manchester United FC, Score: 2:3
2020-09-12 Crystal Palace FC vs Everton FC, Score: 1:2
2020-09-12 West Bromwich Albion FC vs Chelsea FC, Score: 3:3
2020-09-12 Burnley FC vs Southampton FC, Score: 0:1
2020-09-12 Sheffield United FC vs Leeds United FC, Score: 0:1
2020-09-12 Tottenham Hotspur FC vs Newcastle United FC, Score: 1:1
2020-09-12 Manchester City FC vs Leicester City FC, Score: 2:5
2020-09-12 West Ham United FC vs Wolverhampton Wanderers FC, Score: 4:0
2020-09-12 Fulham FC vs Aston Villa FC, Score: 0:3
2020-09-12 Liverpool FC vs Arsenal FC, Score: 3:1
2020-09-12 Chelsea FC vs Crystal Palace FC, Score: 4:0
2020-09-12 Everton FC vs Brighton & Hove Albion FC, Score: 4:2
2020-09-12 Leeds United FC vs Manchester City FC, Score: 1:1
2020-09-12 Newcastle United FC vs Burnley FC, Score: 3:1
2020-09-12 Leicester City FC vs West Ham United FC, Score: 0:3
2020-09-12 Southampton FC vs West Bromwich Albion FC, Score: 2:0
2020-09-12 Wolverhampton Wanderers FC vs Fulham FC, Score: 1:0
2020-09-12 Arsenal FC vs Sheffield United FC, Score: 2:1

```

Figure 12

Brighton & Hove Albion FC vs Southampton FC	2020-12-07 20:00:00 , Score: 1:2
Leeds United FC vs West Ham United FC	2020-12-11 20:00:00 , Score: 1:2
Wolverhampton Wanderers FC vs Aston Villa FC	2020-12-12 12:30:00 , Score: 0:1
Newcastle United FC vs West Bromwich Albion FC	2020-12-12 15:00:00 , Score: 2:1
Manchester United FC vs Manchester City FC	2020-12-12 17:30:00 , Score: 0:0
Everton FC vs Chelsea FC	2020-12-12 20:00:00 , Score: 1:0
Southampton FC vs Sheffield United FC	2020-12-13 12:00:00 , Score: 3:0
Crystal Palace FC vs Tottenham Hotspur FC	2020-12-13 14:15:00 , Score: 1:1
Fulham FC vs Liverpool FC	2020-12-13 16:30:00 , Score: 1:1
Leicester City FC vs Brighton & Hove Albion FC	2020-12-13 19:15:00 , Score: 3:0
Arsenal FC vs Burnley FC	2020-12-13 19:15:00 , Score: 0:1
Wolverhampton Wanderers FC vs Chelsea FC	2020-12-15 18:00:00 , Score: 2:1
Manchester City FC vs West Bromwich Albion FC	2020-12-15 20:00:00 , Score: 1:1
Arsenal FC vs Southampton FC	2020-12-16 18:00:00 , Score: 1:1
Leicester City FC vs Everton FC	2020-12-16 18:00:00 , Score: 0:2
Leeds United FC vs Newcastle United FC	2020-12-16 18:00:00 , Score: 5:2
Fulham FC vs Brighton & Hove Albion FC	2020-12-16 20:00:00 , Score: 0:0
West Ham United FC vs Crystal Palace FC	2020-12-16 20:00:00 , Score: 1:1
Liverpool FC vs Tottenham Hotspur FC	2020-12-16 20:00:00 , Score: 2:1
Aston Villa FC vs Burnley FC	2020-12-17 18:00:00 , Score: 0:0
Sheffield United FC vs Manchester United FC	2020-12-17 20:00:00 , Score: 2:3
Crystal Palace FC vs Liverpool FC	2020-12-19 12:30:00 , Score: 0:7
Southampton FC vs Manchester City FC	2020-12-19 15:00:00 , Score: 0:1
Everton FC vs Arsenal FC	2020-12-19 17:30:00 , Score: 2:1

Figure 13

Conclusion

My aim of having a fully functional code was achieved; however, I felt there was more I could have added more to streamline the experience for the end-user. What I could do in the future with the code, is add a feature whereby entering a team name would bring up their previous, current and upcoming matches for the season, additionally adding what day the matches are played on is it a Monday or Tuesday and I would like to add a winnability rating to teams that match up with each other, the way this would work is from all the past matchups which team won or lost, then a percentage will be given of the probability of a team to lose or win.

Assignment 2

GRADEMARK REPORT

FINAL GRADE

60/100

GENERAL COMMENTS

Instructor

Implementation (70): 40

Report (30): 20

A fairly good effort overall, a good if slightly limited implementation, but with some nice use of code, e.g. some of the formatting is pretty complicated and put together nicely. The report is of a fairly good quality overall, reflecting on the work.

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