

Approach Document: GreedyGame (Session Calculation)

1. Open Notepad++ and begin by importing datetime module.

```
1 from datetime import *
2
3 text_file = open("data.dat", "r")
4 mylist = text_file.read().split('\n')
5 row = len(mylist)
6 mylist = [mylis.replace('\xad', '-') for mylis in mylist]
7 print mylist
8 print "\n"
9 ses = 1
10 tses = 1
11 formatt = '%Y-%m-%d %H:%M:%S.%f'
12 j=1
13 temp=1
```

2. Line 3: Reading the data.dat file which contains a list of date time values as shown below.

2016-05-09	02:00:00.922317
2016-05-09	02:09:13.895672
2016-05-09	02:09:14.529631
2016-05-09	02:17:57.043905
2016-05-09	03:00:00.248542
2016-05-09	03:00:46.391719
2016-05-09	03:05:00.922317
2016-05-09	03:09:13.895672
2016-05-09	03:09:14.529631
2016-05-09	03:17:57.043905
2016-05-09	03:20:00.248542
2016-05-09	03:23:46.391719
2016-05-09	04:09:00.922317
2016-05-09	04:10:57.043905
2016-05-09	04:40:00.248542
2016-05-09	04:54:46.391719

3. Line 4: Creating a list by splitting the data at the end of each line,

Line 5: Calculating number of rows,

Line 6: Replacing \xad with '-' to represent proper date format,

Line 11: Storing the date time format ('%Y-%m-%d %H:%M:%S.%f') in a variable.

4.

```
15 dif = datetime.strptime(mylist[1], formatt) - datetime.strptime(mylist[0],formatt)
16 myarr = dif
17 tvsestime = datetime.strptime(mylist[0], formatt) - datetime.strptime(mylist[0], formatt)
18
19 for i in range(3,row,2):
20
21     diff = datetime.strptime(mylist[i-1], formatt) - datetime.strptime(mylist[i-2], formatt)
22     dif = datetime.strptime(mylist[i], formatt) - datetime.strptime(mylist[i-1], formatt)
23
24     if diff < timedelta(seconds = 30):
25         myarr +=dif
26
```

Line 15-16: Calculating the time for first session and storing in a variable for later calculations.

Line 17: Initializing variable for total valid time calculations.

Line 19: Loop that starts with position 3 (or 4th row) and iterating till the last row incrementing by 2.

Line 21: Calculating the difference between sessions for later calculations and comparison.

Line 22: Calculating the time for each session.

Line 24-25: If the difference between sessions is less than 30 seconds then, consider it as a single continuous session and add the time with the previously calculated time.

```

27
28     if diff > timedelta(seconds = 29):
29         if(temp==1):
30             print "Session time "+str(j)+" : {}".format(myarr)
31             j+=1
32             tvsestime += myarr
33
34         if dif>timedelta(seconds = 60):
35             ses+=1
36             myarr = dif
37             temp=1
38
39         if dif<timedelta(seconds = 60):
40             temp=0
41

```

5. Line 28: If two session time difference is greater than 30 seconds then consider them as separate sessions.

Line 29-32: Printing the valid session time and adding them to calculate the average session time later.

Line 34-37: Checking the condition for valid session (if session time greater than 60 seconds) and incrementing the session variable and setting the counter for printing it in next iteration.

Line 39-40: Setting the counter for NOT printing it in next iteration as it is not a valid session.

- 6.

```

42         tses+=1
43
44     if ((i == row-1) and dif>timedelta(seconds = 60)):
45         tvsestime += myarr
46         print "Session time "+str(j)+" : {}".format(myarr)
47         j+=1
48         print "\nTotal Session time : {}".format(tvsestime)
49
50     print "\nAverage Session time : {}".format(tvsestime/ses)
51     print "\nTotal Number of sessions = {}".format(tses)
52     print "\nNumber of valid sessions = {}".format(ses)
53
54     text_file.close()
55

```

Line 42: Incrementing the counter to calculate total session (Valid+Not Valid).

Line 44-48: For the last set of values calculating the total valid session time and printing the last session time and total session time.

Line 50-52: Calculating and printing Average session time, total number of sessions and number of valid sessions.

OUTPUT:

```
In [1]: runfile('C:/Users/dipak/Documents/Python Scripts/  
GreedyGames-SessionCalculation-Dipak_Majhi.py', wdir='C:/Users/  
dipak/Documents/Python Scripts')
```

```
['2016-05-09 02:00:00.922317', '2016-05-09 02:09:13.895672',  
'2016-05-09 02:09:14.529631', '2016-05-09 02:17:57.043905',  
'2016-05-09 03:00:00.248542', '2016-05-09 03:00:46.391719',  
'2016-05-09 03:05:00.922317', '2016-05-09 03:09:13.895672',  
'2016-05-09 03:09:14.529631', '2016-05-09 03:17:57.043905',  
'2016-05-09 03:20:00.248542', '2016-05-09 03:23:46.391719',  
'2016-05-09 04:09:00.922317', '2016-05-09 04:10:57.043905',  
'2016-05-09 04:40:00.248542', '2016-05-09 04:54:46.391719']
```

```
Session time 1 : 0:17:55.487629  
Session time 2 : 0:12:55.487629  
Session time 3 : 0:03:46.143177  
Session time 4 : 0:01:56.121588  
Session time 5 : 0:14:46.143177
```

```
Total Session time : 0:51:19.383200
```

```
Average Session time : 0:10:15.876640
```

```
Total Number of sessions = 6
```

```
Number of valid sessions = 5
```

```
In [2]:
```