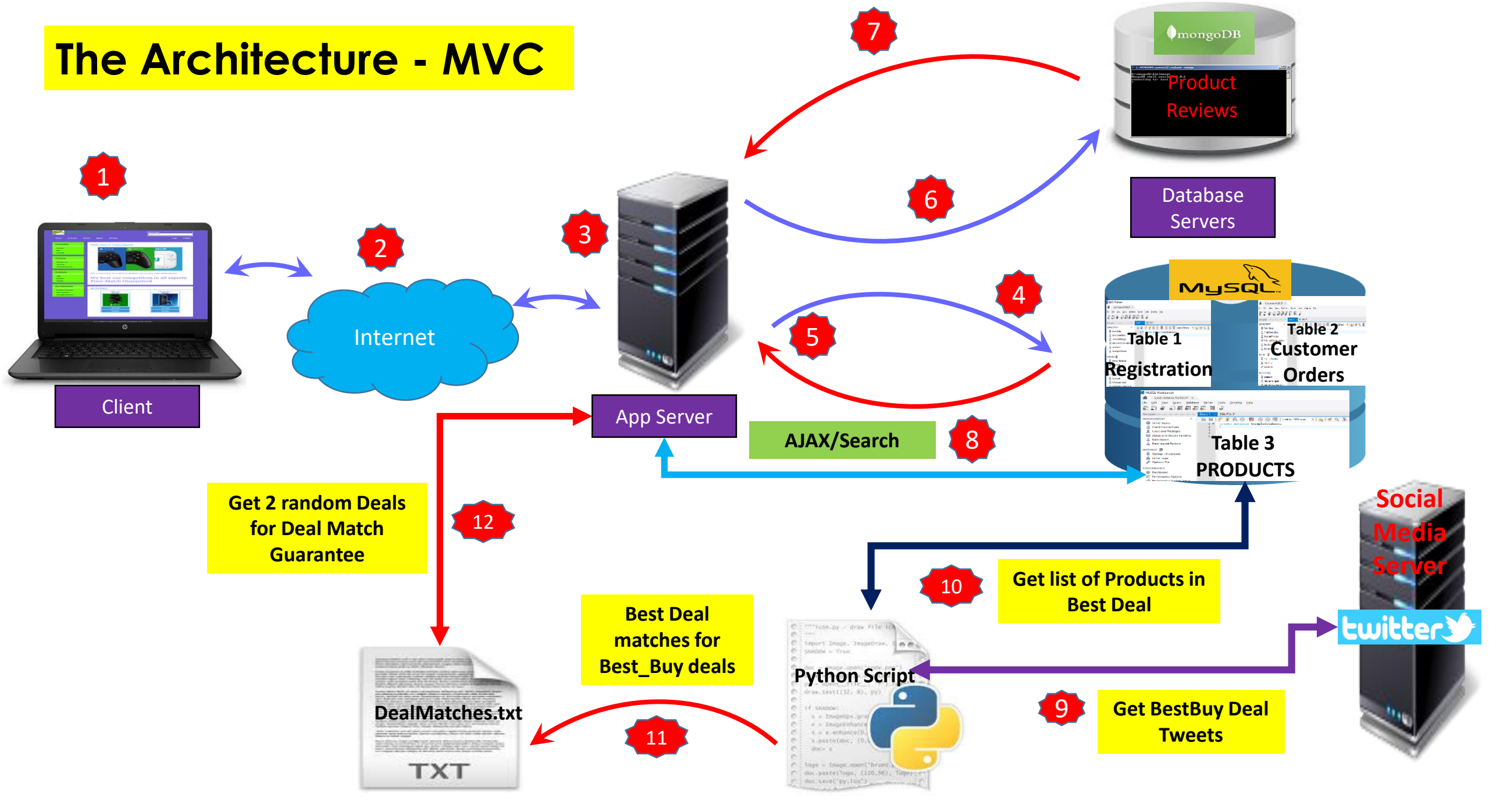
Tutorial #6

Python-Twitter-API

Dr. Atef Bader

- Presentation By
Snehal Prajapati

The Architecture - MVC



1.Python – Overview:

- Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable.
- It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.
- Python is Interpreted: Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- Python is Interactive: You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- Python is Object-Oriented: Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- Python is a Beginner's Language: Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

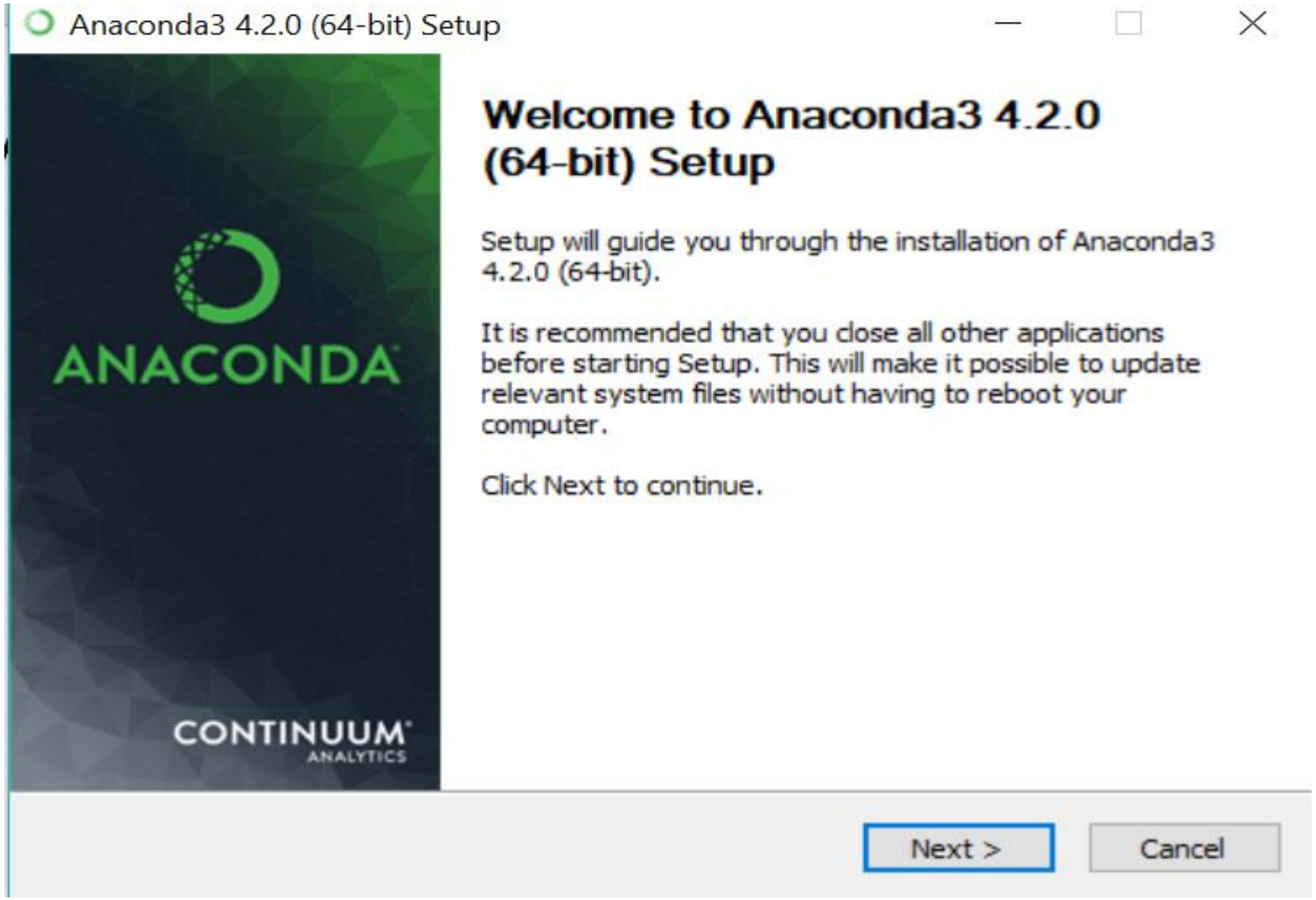
Let us See an Example of Python Code:

```
print "Hello, Python!"
```

12. Anaconda – Download:

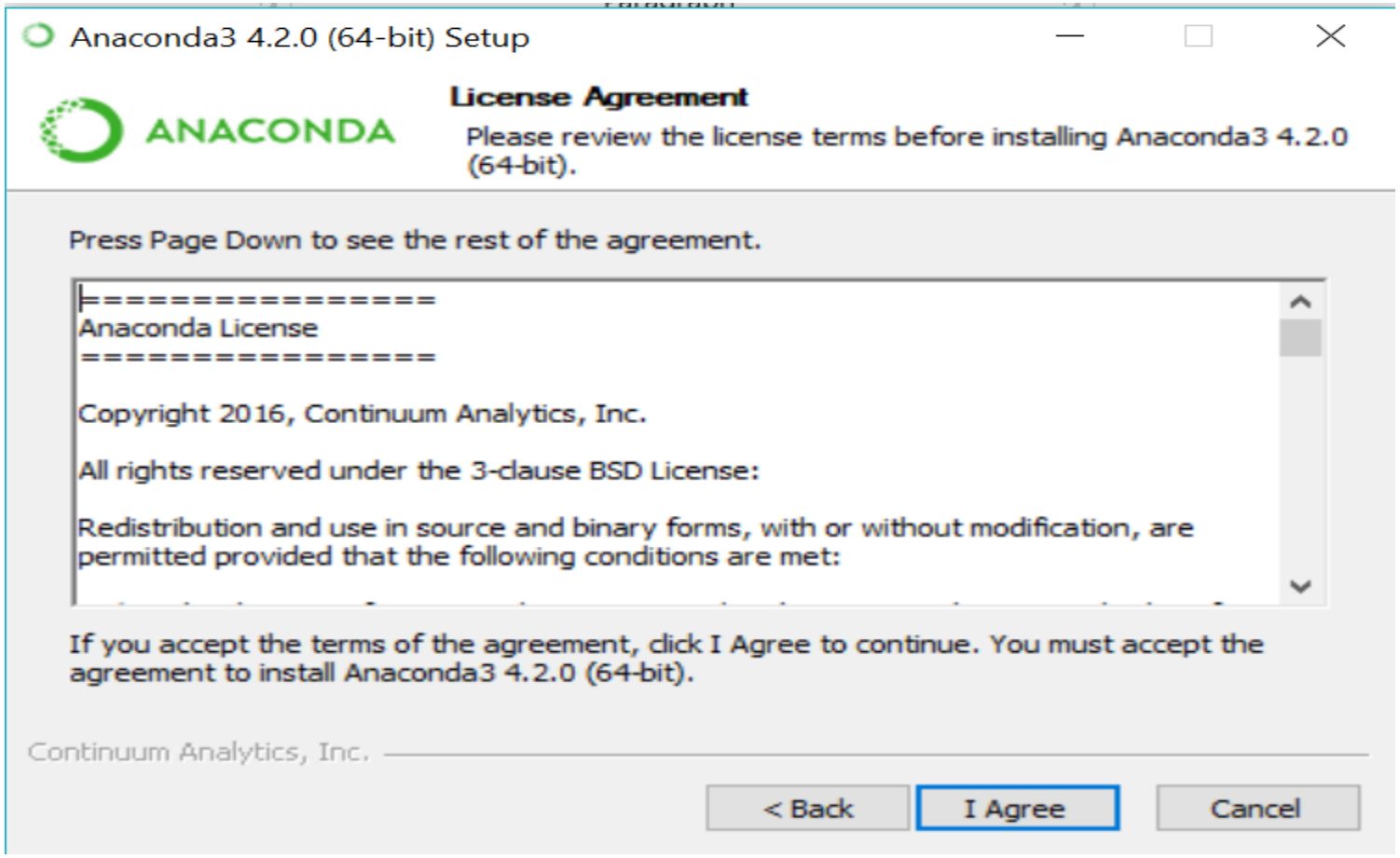
- **Go to https://www.anaconda.com/download/ and click on the 'Download For Windows' button to download Anaconda 64-bit installer (Anconda 4 or 5 should be fine with Python 3)**

12. Anaconda – Setup:



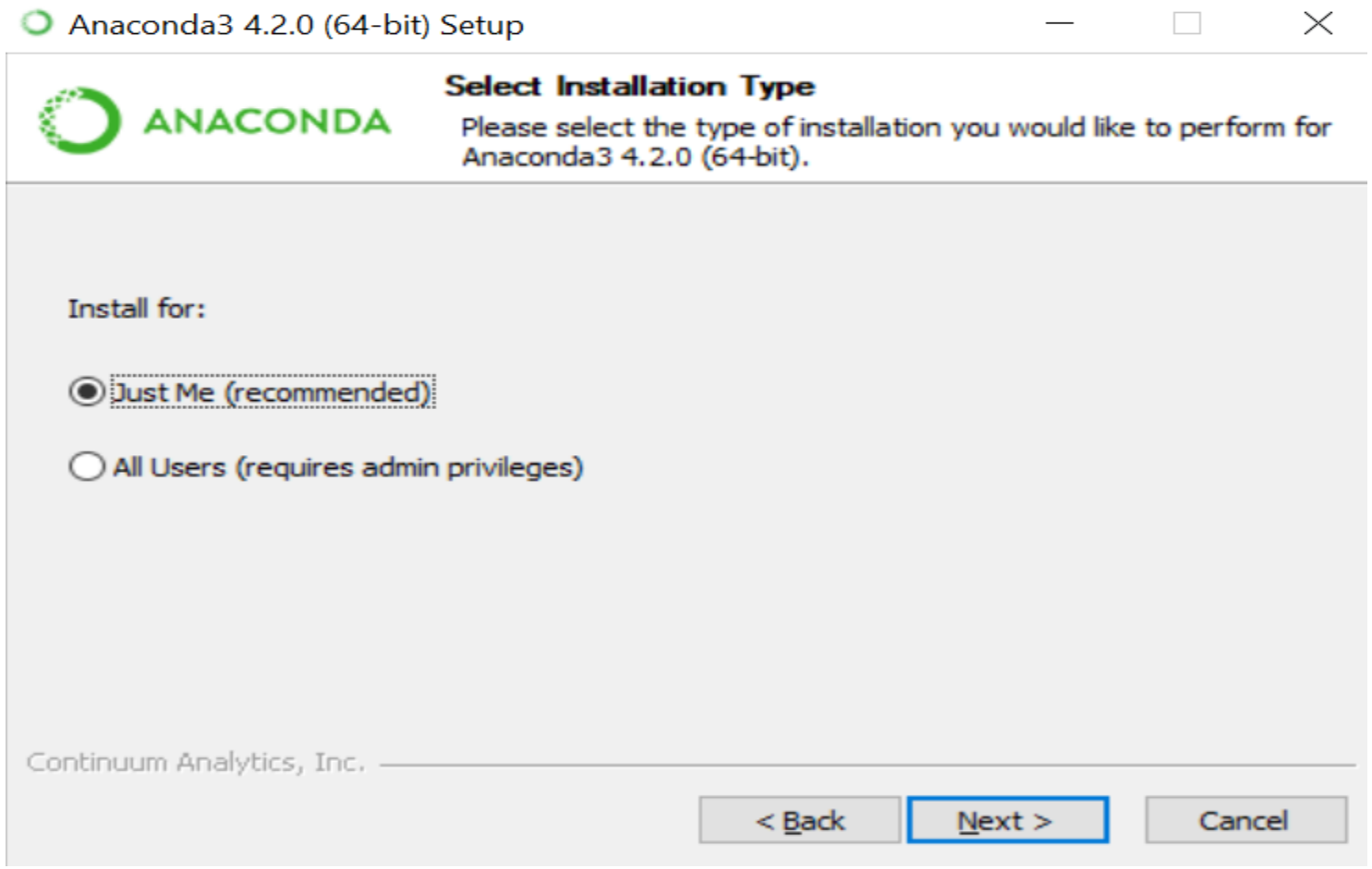
12. Anaconda – Setup:

- **Agree to the Terms and Conditions by clicking “I Agree”.**



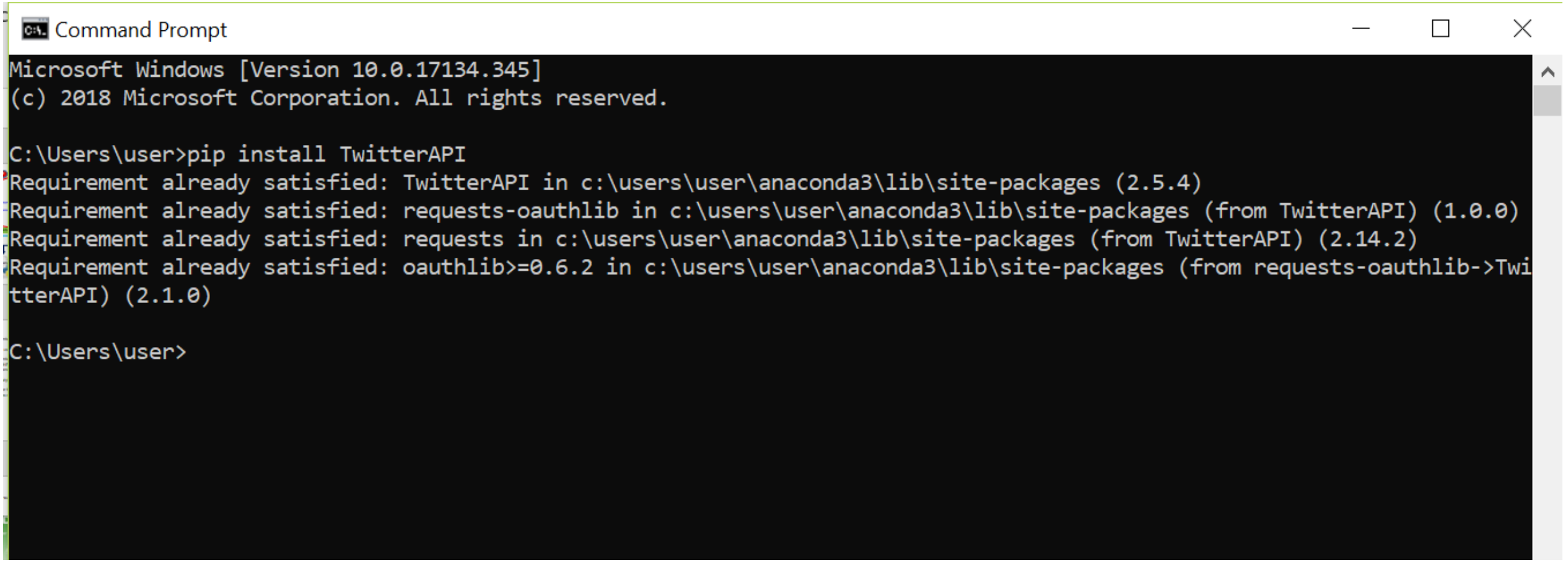
12. Anaconda – Setup :

- **Install for “Just Me(recommended)” and click Next to select the destination location and it will install Anaconda in your system.**



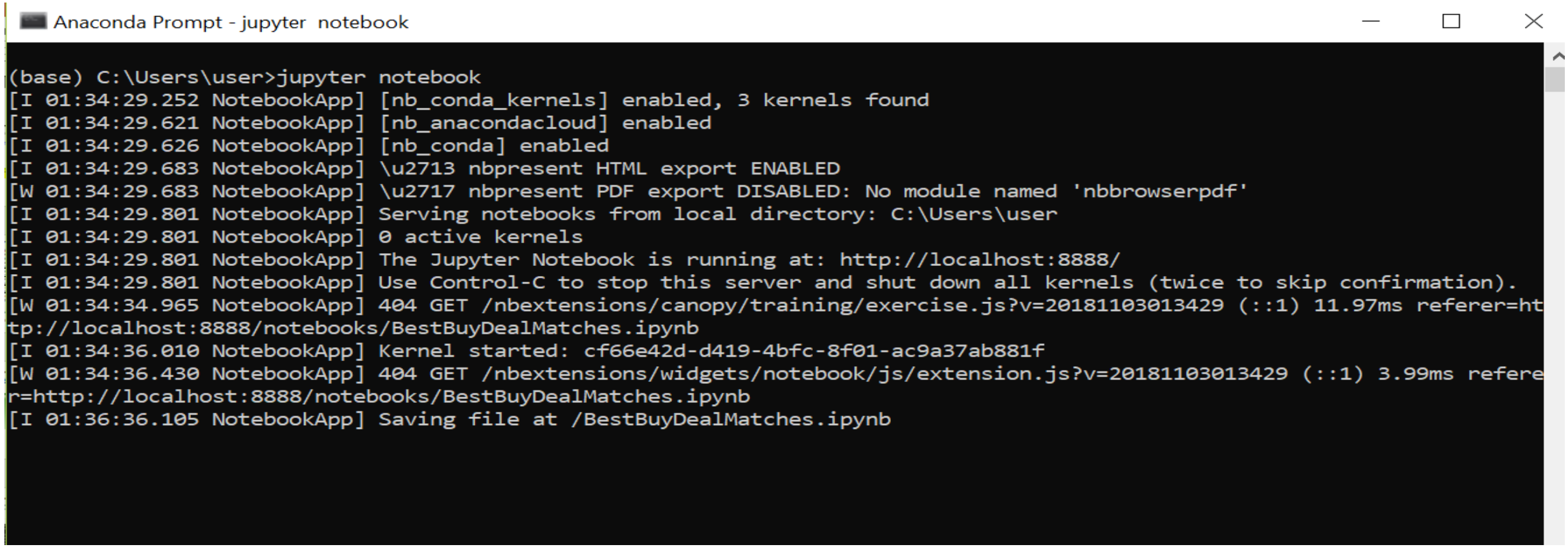
13. Anaconda – TwitterAPI download:

- **Open your command prompt and type “pip install TwitterAPI” which downloads TwitterAPI package inside the Anaconda folder as shown below :**



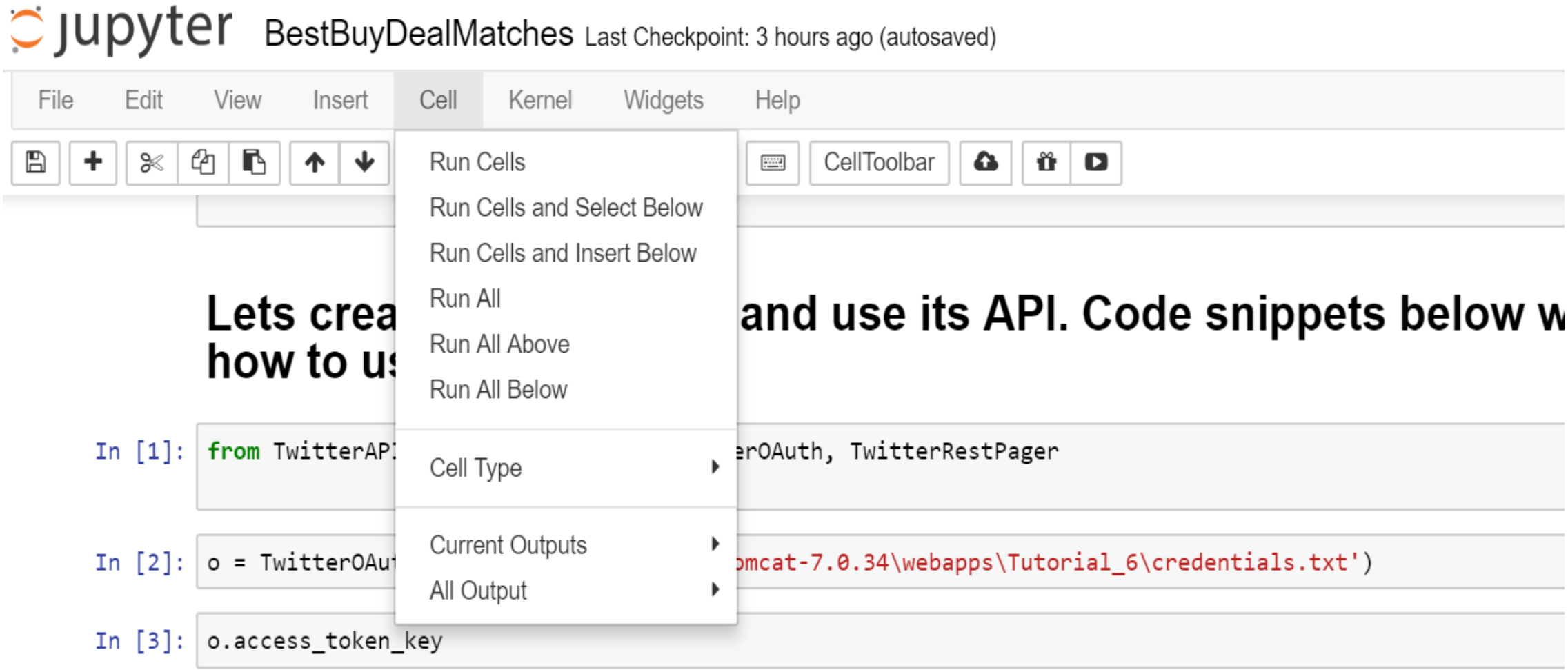
14.Anaconda Terminal to open Jupyter notebook:

- **Type “jupyter notebook” in the Anaconda command prompt which will open jupyter notebook.**



15.Anaconda – Running the notebook:

- **Select Run All from Cell menu.**



17.Anaconda – Python 3.x : Things to note :

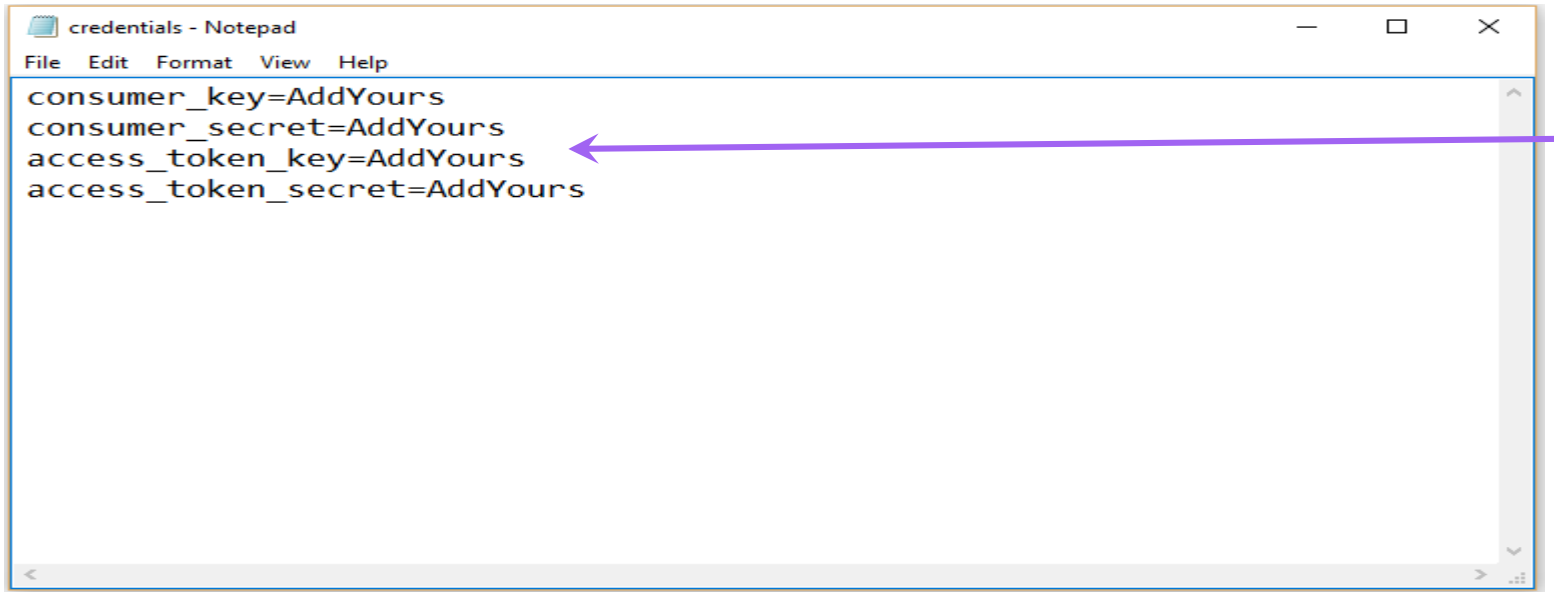
- **If you are using Python 3.x on top of anaconda, syntax is a little different from Python 2.x**
- **E.x. print “Hello World” is NOT valid in Python 3.x rather print(“Hello World”) is used**
- **As shown above with Canopy, we no more require encoding of tweets**

In [32]:

```
import re
import pymysql

cnx = pymysql.connect(user='root', password='Internetsp@92',
                                  host='127.0.0.1',
                                  database='exampledatabase')
cursor = cnx.cursor()

query = ("SELECT id FROM ProductDetails")
cursor.execute(query)


dealMatchGauranteed=[]
for product in cursor:
    for tweet in timeline:
        deal = (tweet['text'])
        if (len(re.findall('\s'+product[0]+'\s',deal)) >= 1):
            dealMatchGauranteed = dealMatchGauranteed + [deal]
```

6.Twitter API Creating New Application

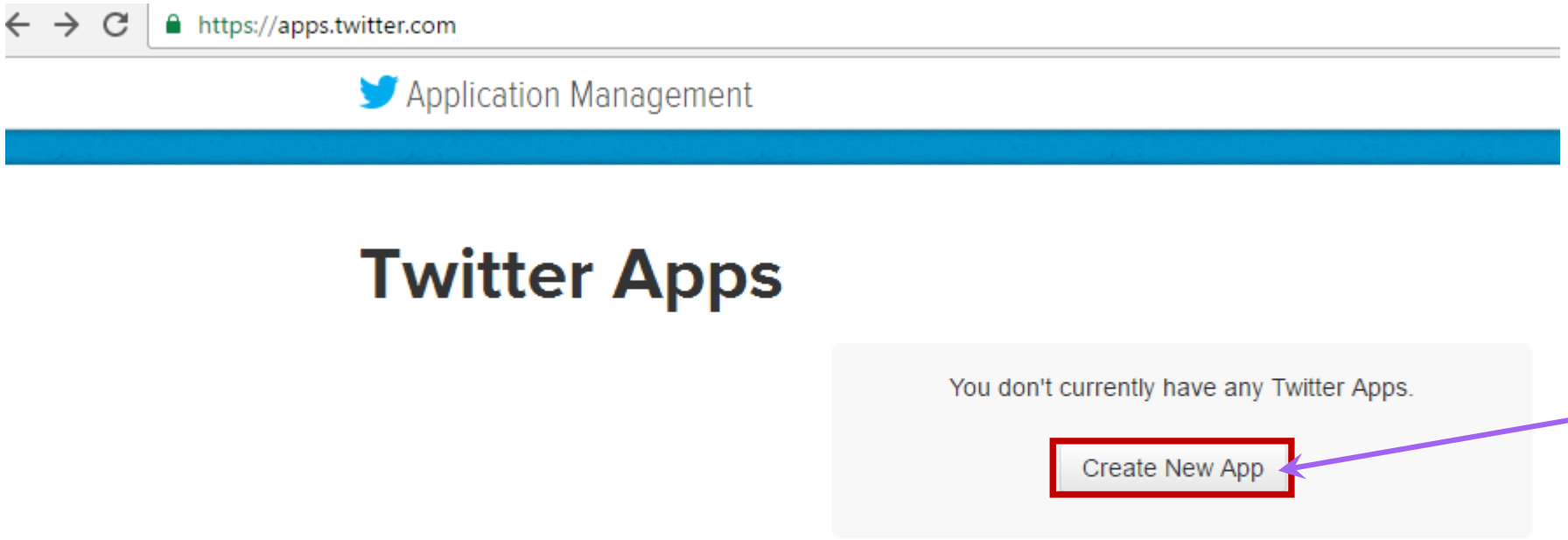
- Create an account on http://twitter.com
- Generate authentication tokens by following the instructions in https://apps.twitter.com
- The new portal for Twitter developer will be : developer.twitter.com
- Add your tokens to the key/token to a file called credentials.txt
- Save credentials.txt file inside your application folder where you save python script



Add your authentication token here

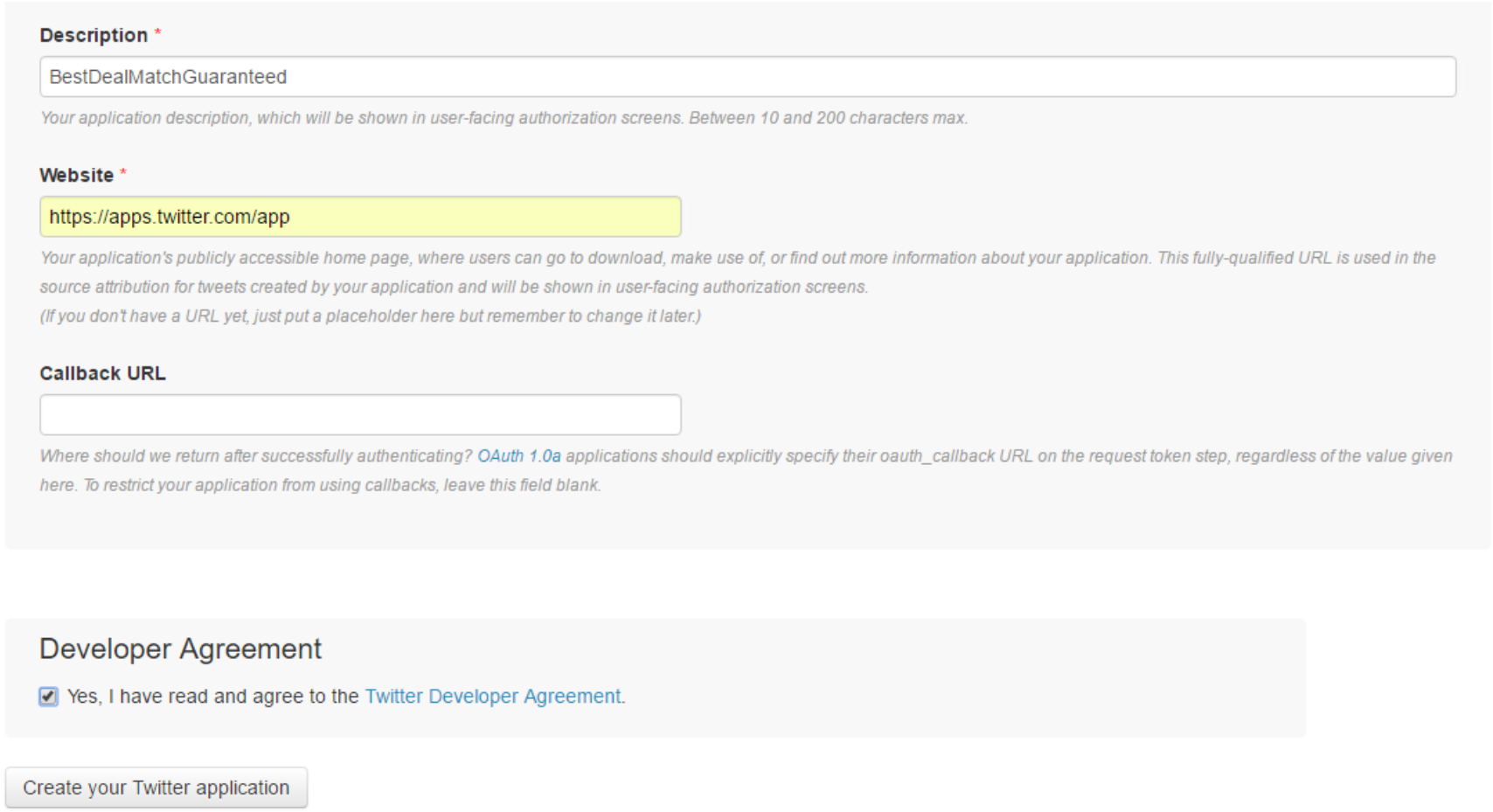
6. Twitter API Creating New Application

Create an account on http://twitter.com
Go to https://developer.twitter.com/en/apps and click button create new app



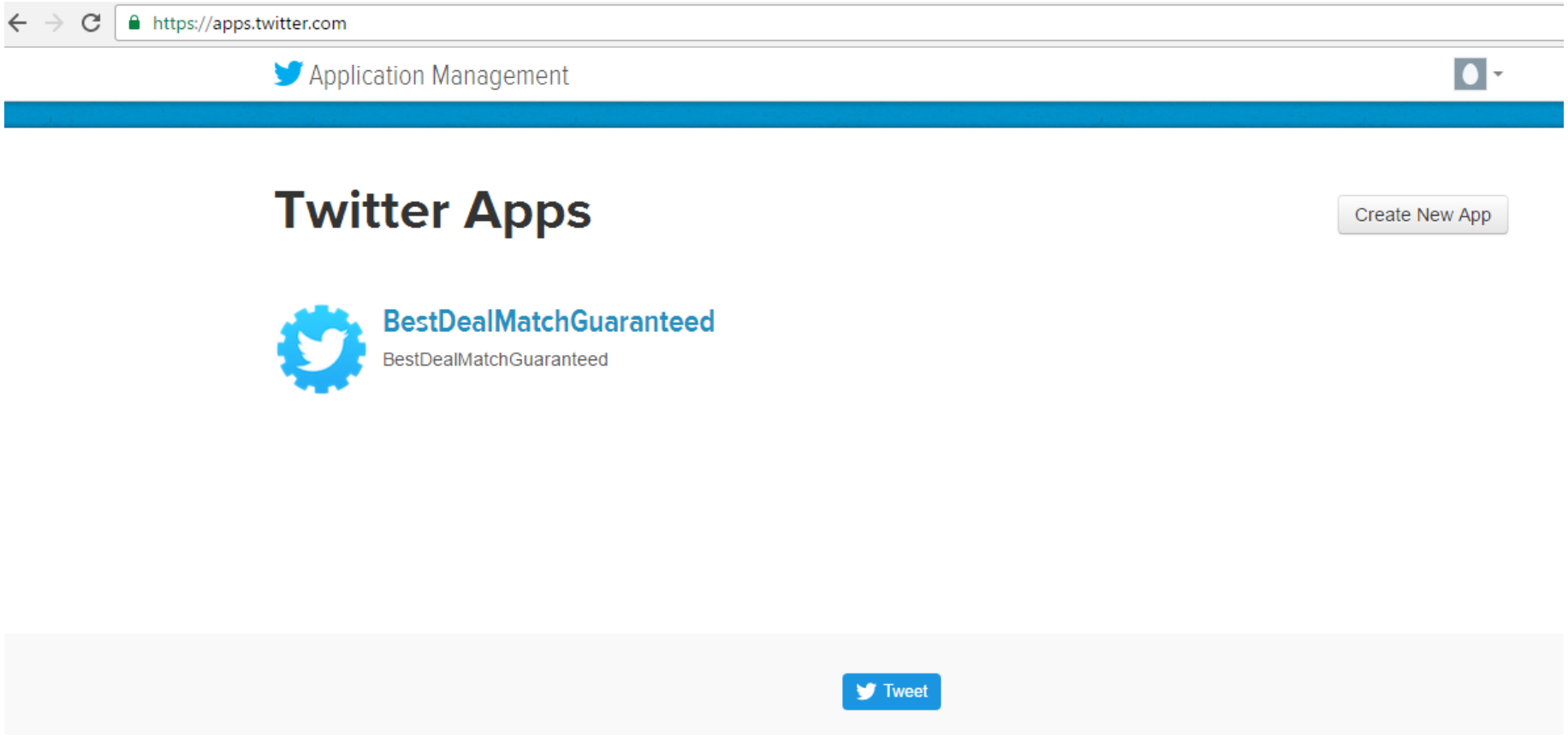
6. Twitter API Creating New Application

- Give the application name and description and click Create your twitter application



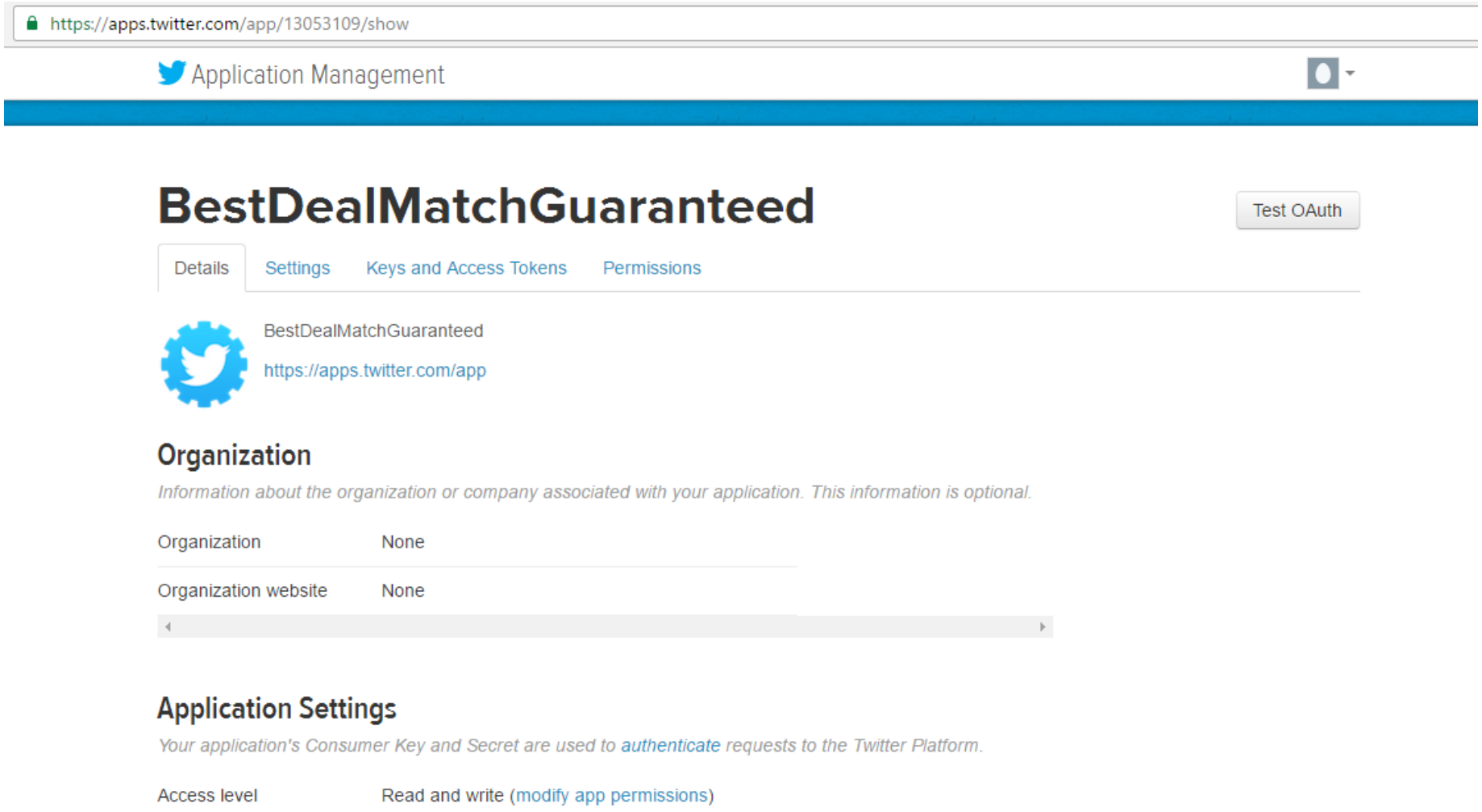
6. Twitter API Creating New Application

- Your Application will be created now you can generate access tokens



7. Generating Access tokens for twitter application

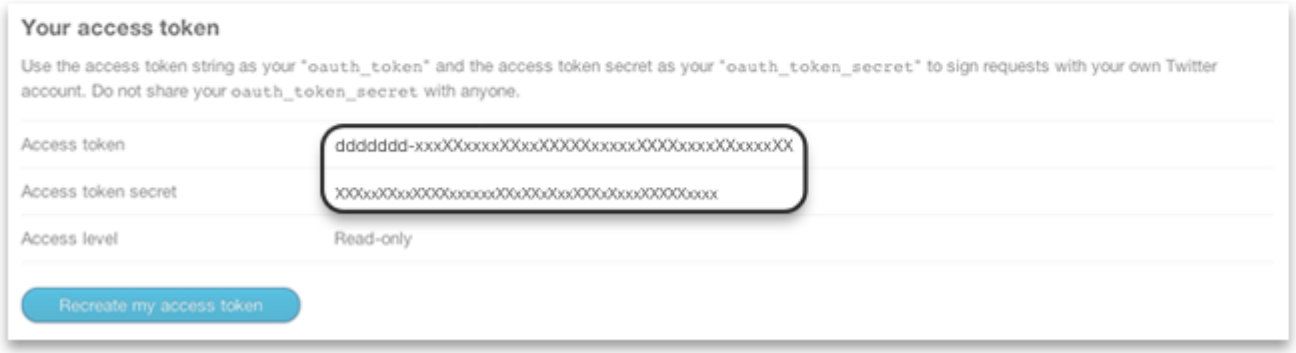
- Click on the application you created
- Click on keys and access tokens tab to create your access tokens



7 .Generating Access tokens for twitter Application:

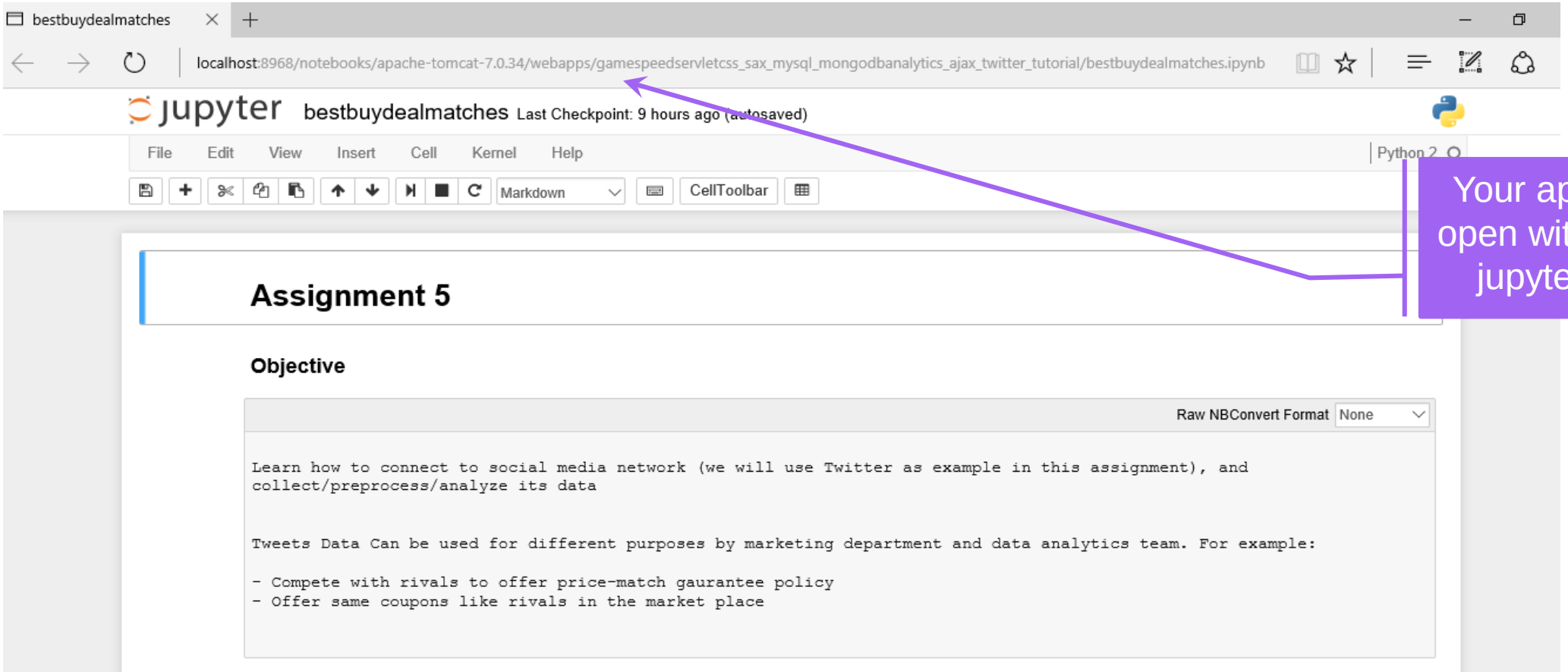
At the bottom of the next page, you will see a section labeled "**your access token**":

Click on the "**Create my access token**" button, and an authorized access token and secret will be generated for your account and the current application. These values may be used to authorize requests to the Twitter API.



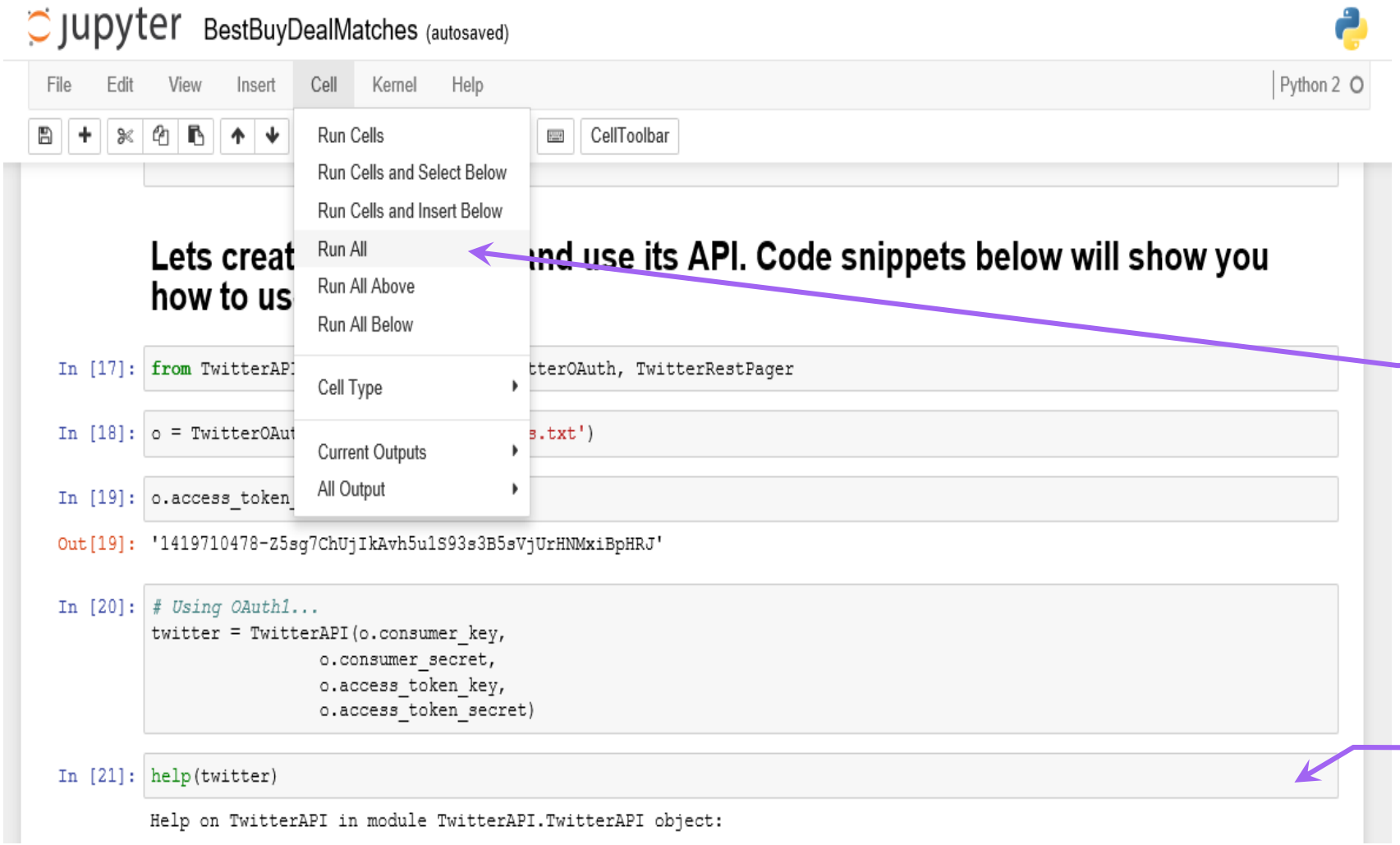
10.Jupyter Notebook:

- **Jupyter notebook is a platform a server-client application that allows editing and running python notebook documents via a web browser**



11. Running Python Application

Select the cell for the python script you want to run and execute it



You can select run all cells or run cells based on code you want to run

Each cell is represented by a box

11. Running Python Application

Connect to Twitter using the Twitter API access tokens and keys you generated

Lets create twitter object and use its API. Code snippets below will show you how to use this API

In [117]:
```
from TwitterAPI import TwitterAPI, TwitterOAuth, TwitterRestPager
```

In [118]:
```
o = TwitterOAuth.read_file('credentials.txt')
```

In [*]:
```
# Using OAuth1...
twitter = TwitterAPI(o.consumer_key,
                     o.consumer_secret,
                     o.access_token_key,
                     o.access_token_secret)
```

Connecting to twitter using access tokens and key

In [121]:
```
help(twitter)
```

11. Running Python Application

Getting the tweets from best buy twitter account

Limitations: Can only search 2 weeks in past But can get up to 3,200 most recent tweets of a user Rate limits! https://dev.twitter.com/docs/rate-limiting/1.1/limits e.g., 180 requests in 15 minute window

Get BestBuy timeline for the deals screen-name

This is the screen name for BestBuy_Deals

In [143]:
```
# Get BestBuyDeals timeline = ''
screen_name = 'BestBuy_Deals'
timeline = [tweet for tweet in twitter.request('statuses/user_timeline',
                                               {'screen_name': screen_name,
                                                'count': 200})]
print 'got %d tweets for user %s' % (len(timeline), screen_name)
```

```
got 200 tweets for user BestBuy_Deals
```

Get all tweets for Screen_Name BestBuy_Deals

Find the deals in the BestBuy_Deal tweets that match products in BestDeal MySQL product table

In [66]:
```
import re
import pymysql

cnx = pymysql.connect(user='root', password='root',
                              host='127.0.0.1',
                              database='exampledatabase')
cursor = cnx.cursor()

query = ("SELECT productid FROM Product")
cursor.execute(query)


dealMatchGauranteed=[]
for product in cursor:
    for tweet in timeline:
        deal = (tweet['text']).encode('ascii','ignore')
        if (len(re.findall(r'\s'+product[0]+'\s',deal)) >= 1):
            dealMatchGauranteed = dealMatchGauranteed + [deal]
```

Make sure user and password are correct and table name should be same.Make sure its productid or productname

Match the Product in best buy tweets with the products we have in my sql database

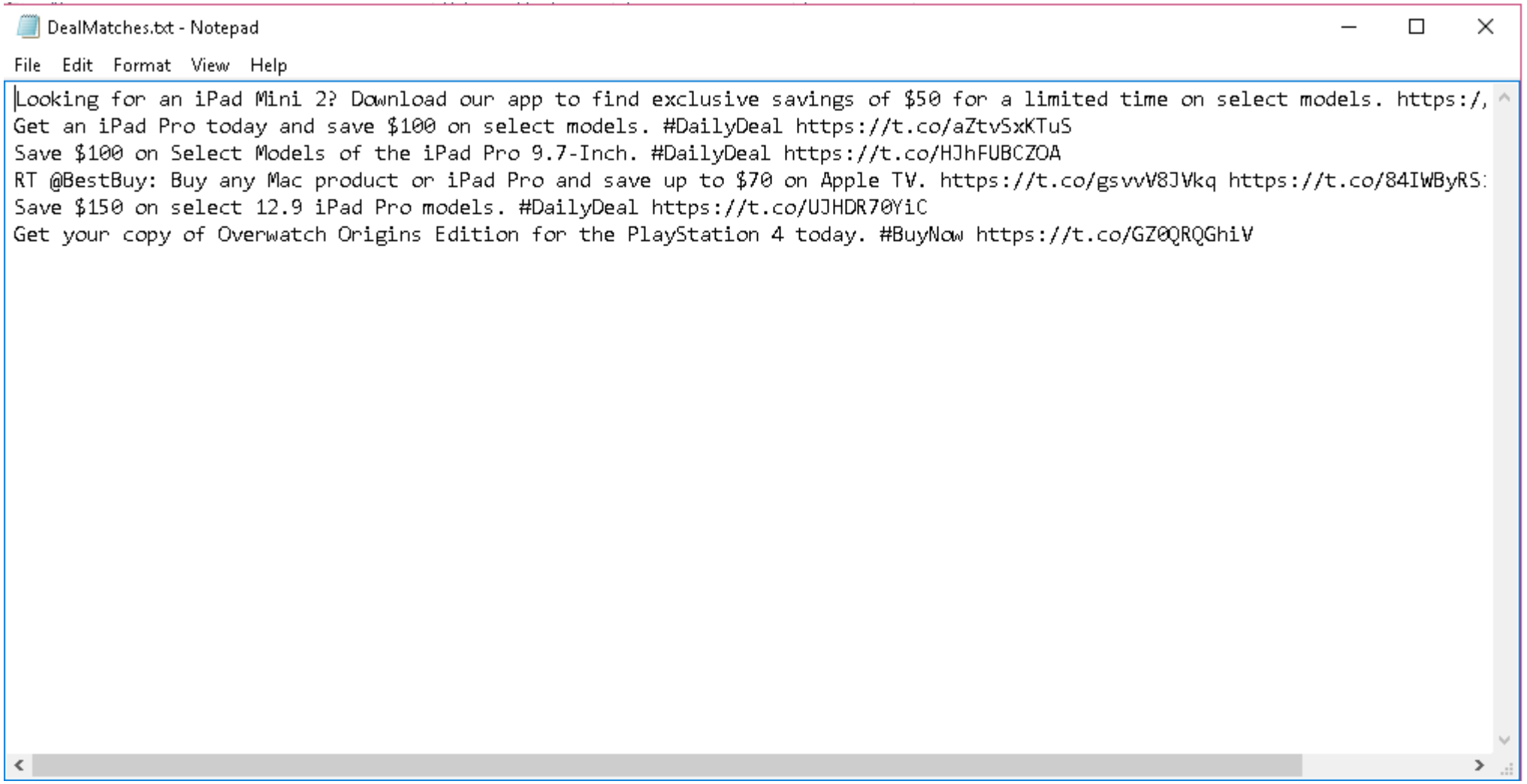
In [37]:
```
# Sanity Test that  we got some deals
dealMatchGauranteed
```

Out[37]:
```
['Looking for an iPad Mini 2? Download our app to find exclusive savings of $50 for a limited time on select models. https://t.co/
1Ae2078TAv',
 'Get an iPad Pro today and save $100 on select models. #DailyDeal https://t.co/aZtvSxKTuS',
 'Save $100 on Select Models of the iPad Pro 9.7-Inch. #DailyDeal https://t.co/HJhFUBCZOA',
 'RT @BestBuy: Buy any Mac product or iPad Pro and save up to $70 on Apple TV. https://t.co/gsvvV8JVkq https://t.co/84IWByRS1e',
 'Save $150 on select 12.9 iPad Pro models. #DailyDeal https://t.co/UJHDR70YiC',
 'Get your copy of Overwatch Origins Edition for the PlayStation 4 today. #BuyNow https://t.co/GZ0QRQGhiV']
```

Following products tweets we got in best buy account that match with our records

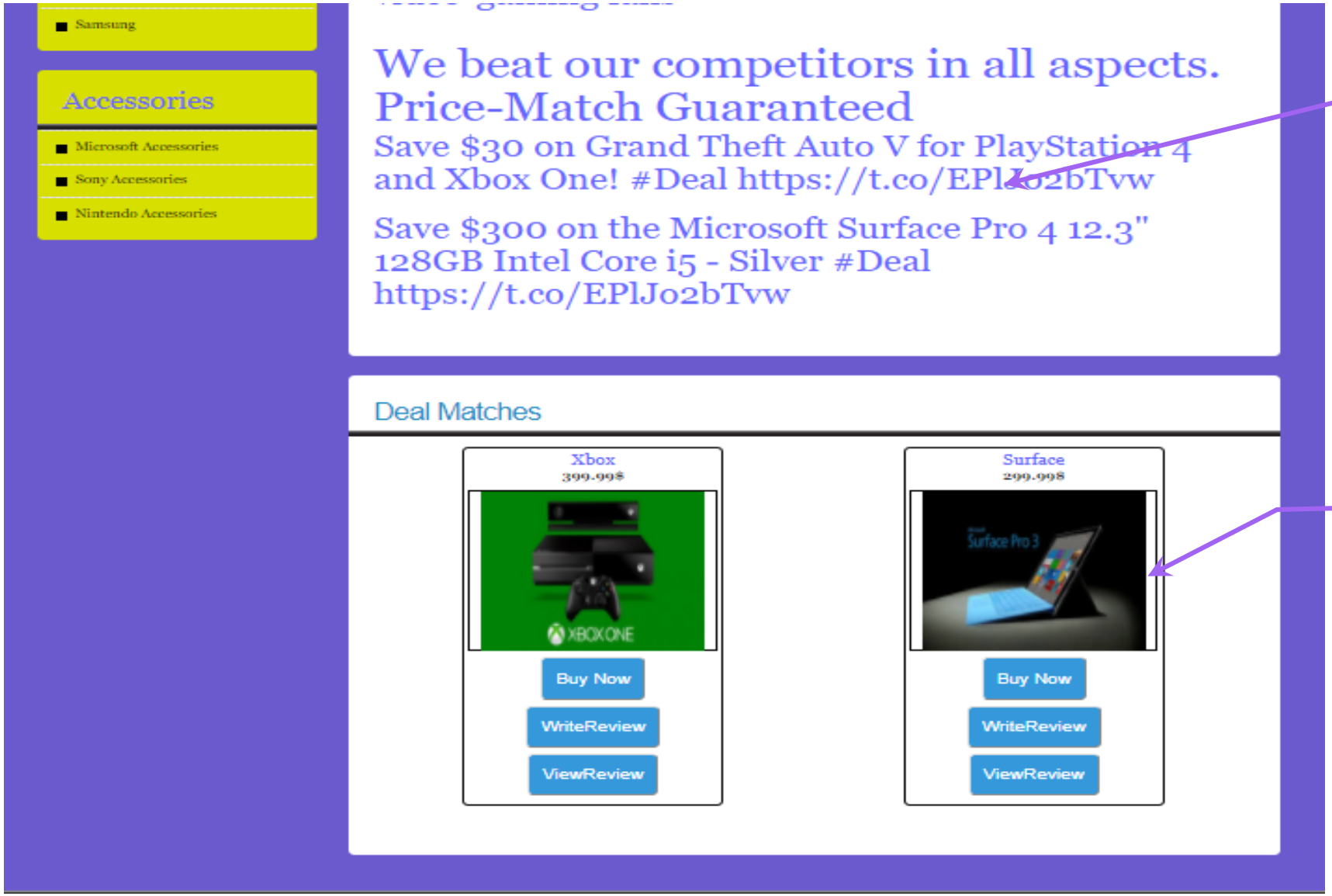
11. Running Python Application

Save the tweets from python script to a file called DealMatches.txt



12. Example : Display Tweets and Products

Get the tweets from DealMatches.txt and display in web page

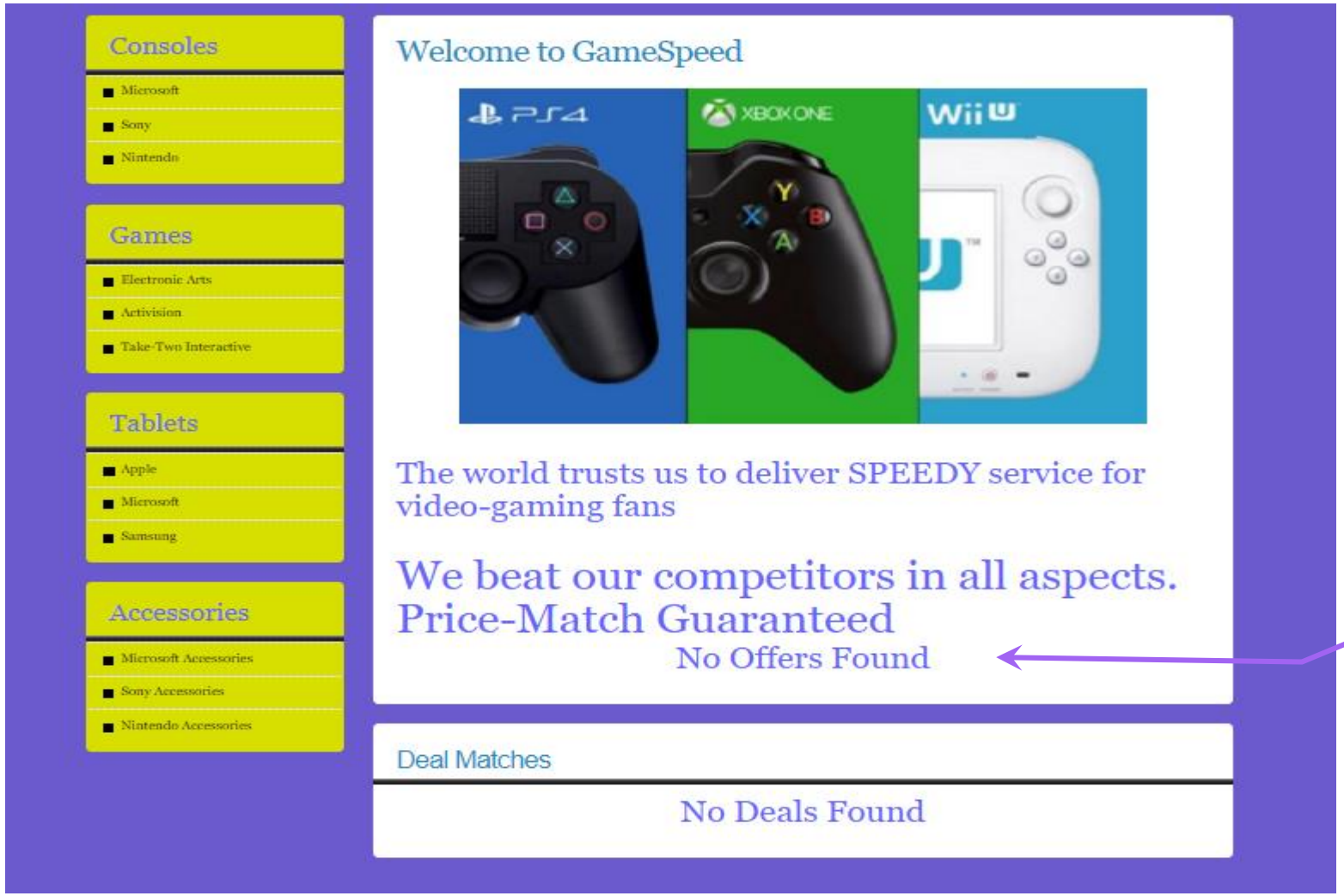


Display the tweets for products that matches with best buy Products

Display the respective products that are available in best buy tweets

13. Example : Display Tweets and Products

If no tweets are found that match products from database display no offers found



If no data for any product found in best buy twitter account display no offers found

14.What is PrintWriter in Servlet ?

- PrintWriter prints text data to character Stream.
- To send character data we use the PrintWriter object returned by getWriter().
- Example:

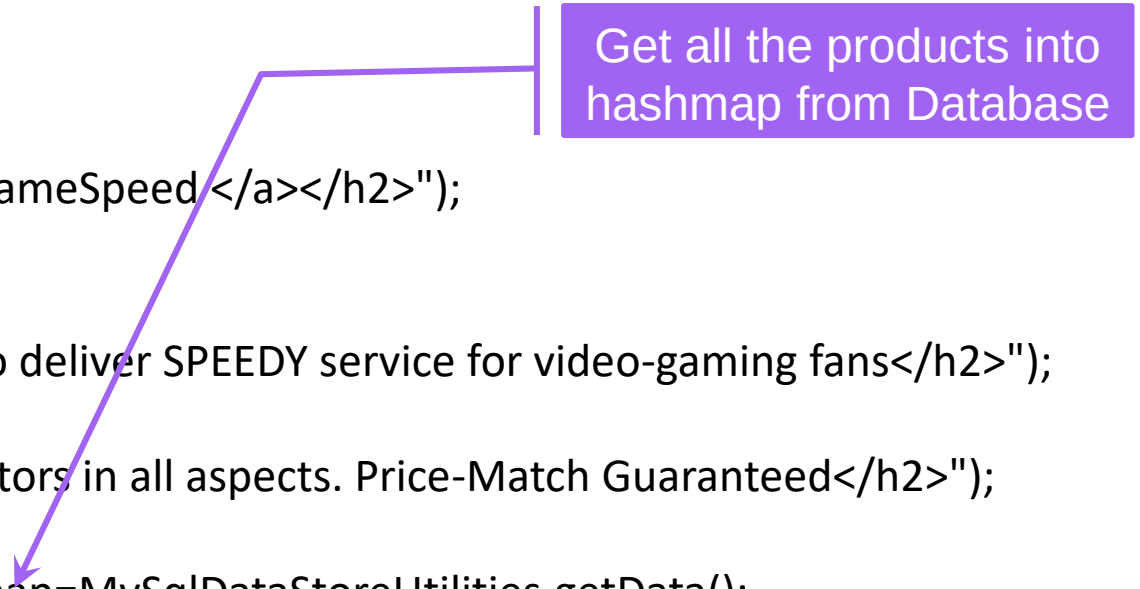
```
PrintWriter pw = response.getWriter();
```

- pw is an PrintWriter object.
- response.getWriter();
  returns the object of PrintWriter Class in which print(String args) method is declared to print any thing on the browser's page as a response.

15. Sample Code Snippet for to Display Deals:

DealMatchesUtilities Servlet

```
public class DealMatchesUtilities extends HttpServlet {
public void doGet(….)
{
response.setContentType("text/html");
PrintWriter pw = response.getWriter();
HashMap<String,Product> selectedproducts=new HashMap<String,Product>();
                        try
                        {
                        pw.print("<div id='content'>");
                        pw.print("<div class='post'>");
                        pw.print("<h2 class='title'>");
                        pw.print("<a href='#'>Welcome to GameSpeed </a></h2>");
                        pw.print("<div class='entry'>");
                        pw.print("<br> <br>");
                        pw.print("<h2>The world trusts us to deliver SPEEDY service for video-gaming fans</h2>");
                        pw.print("<br> <br>");
                        pw.print("<h1>We beat our competitors in all aspects. Price-Match Guaranteed</h2>");
                        String line=null;
                        HashMap<String,Product> productmap=MySqlDataStoreUtilities.getData();
                        }
```



```
for(Map.Entry<String, Product> entry : productmap.entrySet())
{
        if(selectedproducts.size()<2 && !selectedproducts.containsKey(entry.getKey()))
        {
        BufferedReader reader = new BufferedReader(new FileReader (new
File(TOMCAT_HOME+"\\webapps\\GameSpeedServletCSS_SAX_MySql_MongoDBAnalytics_AJAX_Twitter_Tutorial\\DealM
atches.txt")));
                        line=reader.readLine();
                if(line==null)
                { pw.print("<h2 align='center'>No Offers Found</h2>");break;}
                else
                {       do {
                                if(line.contains(entry.getKey()))
                                {
                                        pw.print("<h2>"+line+"</h2>");
                                        pw.print("<br>");
                                        selectedproducts.put(entry.getKey(),entry.getValue());
                                        break;
                                }
                         }while((line = reader.readLine()) != null);
                }
        }
}
```

If no products found that matches with best buy display no offers found

Display the tweets for products that matches with best buy