**ABSTRACT**

Web Scraping using Python: Track prices of products in Amazon.in

**Google Drive link for Project Screenshots:**

https://drive.google.com/open?id=1ZHOFOoPytkX5YS3-uzCZrHYw88kfPNbE

*Introduction*

E-Commerce websites are so popular now as it is easy for people to buy products sitting at home using the website. The number of users have now drastically increased during these lockdown phases. In terms of popularity and reviews, Amazon.com definitely tops the list of all the E-Commerce websites.

Sometimes it can be a tedious process to check the price of a product that you wish to buy using the website. It’s fine with one or two products, but what if we have more? Since most of the people are now working from home, they have to keep 3 or 4 tabs open in their browser to always check whether the prices of the products they wish to buy have dropped and they have to do it every single day.

Using the power of Python3, I have created this application that could track price of not one but four products in Amazon.in.

*About the project:*

This light-weight application allows us to check whether the price of a product that we wish to buy has dropped below a certain value.

All the user need to do is that find the product in Amazon.in, copy the URL of that product’s webpage and paste it in the slot provided in the application. Beneath that there is another slot to add your desired price. The user then needs to hit the check button. The application then will display the product name and the current price of that product. If the current price of the product is less than or equal to your desired price, it will display ‘The price has dropped!’ .This could be done for four different products.

Even if the application is restarted, all the previously provided information will be loaded again so that you need not copy and paste the URL all the time. For storing information, a text file will be created when you run this application as database (pricetracker.txt). You can also check the status of all the products at once using the Check all button.

Whenever the price is checked, a time stamp also gets updated which ensures that you regularly check the product status.

You can also quickly visit the webpage of the product using the Visit page button.

When you are done with a product, hit reset and you can add another product.

So just open the application, hit check and that’s it! Quick and efficient.

*More Features:*

Data visualization – Whenever the price of a product is checked, the current price gets stored in the text file. These values are used to generate a plot that will show the price fluctuation of that product. (Plots are generated using pandas and matplotlib). Recent 20 values are used for plot generation.

This acts as a powerful tool for analysis. After so many checks are done for a product and you check the graph, you will get an idea on how occasionally the price of that product varies.

If you get a straight line graph or a graph with not much spikes, you can come to a conclusion that this product’s price is not changing that much. Which means that the chance for the price to drop below your desired price is low and you can move on to a different product. However you can keep your hopes alive if the graph is having variations.

This feature is available for all the four products and could be accessed from a drop down menu named Analytics.

*User Interface*

Using Tkinter module of Python3, a simple but effective GUI is created for this application.

All the features are easily accessible.

Maximize button is disabled as the interface looks better in the compressed form.

Appropriate pop up messages will be displayed to convey various information.

For new users, a window will be shown to enter their user agent, as it is required for the proper functioning of the application. User agent could be found by searching ‘My user agent’ in your browser.

*Errors and exceptions handling*

For excellent user experience, all the possible errors will be dealt by this application.

Invalid URLs will be rejected. Invalid inputs made by the user will be rejected and appropriate message will be shown.

Some products in Amazon.in doesn’t have a price listed and some have a price range (for example Rs. 450 – 875). Product names of those products will be displayed but their price will displayed as ‘Not listed in Amazon.in’.

If not connected to the internet, an error message will be displayed when check button is clicked.

No interactions could be made on the applications’ main window, if a pop up window or error message appears. The user has to deal with the pop up window first.

In order to not lose the data accidentally by clicking the Reset all button, a confirmation message will be shown.

If there is no price fluctuations, the graph displayed will be a straight line. Remember, if not enough checks are made, the displayed graph will be empty.

New users have to copy and paste their user agent in a pop up window. If they input an invalid user agent, an error message will be shown. If the pop up is ignored, it will be displayed again when a button is clicked on the main window.

The application was tested with various possible products in Amazon.in. However 100 % accurate response wasn’t there. But still it works great for almost all the products.

The Check all function will take some time to display product information, if the user has all the input fields filled. Kindly wait for some time for the response and do not close the application.

All imported packages in the code must be installed before running the code.

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