A

MINI PROJECT

ON

PRICE COMPARATOR

SUBMITTED IN PARTIAL FULFILMENT FOR THE COMPLETION OF

BE-V SEMESTER

IN

INFORMATION TECHNOLOGY

BY

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UNDER THE GUIDANCE OF

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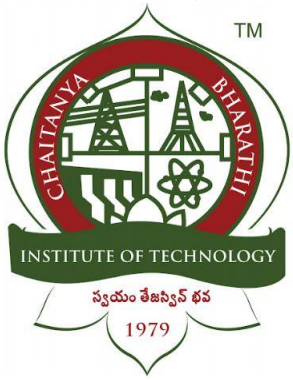

DEPARTMENT OF INFORMATION TECHNOLOGY

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

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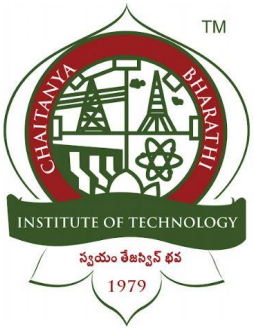

CERTIFICATE

This isto certify that the project work entitled "**PRICE COMPARATOR**" submitted to **CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY,** in partial fulfilment of the requirements for the award of the completion of V semester of B.E in Information Technology, during the academic year 2019-2020, is a record of original work done by**, M.Yogitha Nandini (160117737030), P.Arun Raj (160117737034)** during the period of study in Department of IT, CBIT, HYDERABAD, under our supervision and guidance.

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DECLARATION

I hereby declare that the mini project which we have done was under the supervision of the faculty of our college. No part of our project has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.

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ABSTRACT

Price Comparison project is used to compare the prices of a product from various online shopping websites to help the people to find the affordable price to buy the product and to analyse the fluctuations in prices.

Price Comparison manages to access the HTML webpage and extract useful information or data like price of product by various techniques using various modules. This project can be useful to 50-70% of consumers who tends to know the price of the product online before purchase.

This project is easy to access. This project helps users to check and compare price of same product. When the user enters the category product name and clicks on the button, it displays the product price of various online shopping websites. So, the user can know the right product at the right price.

It increases the speed to choose the product. It saves lot of time. Choosing minimum cost for same product. You can set your site integrated with multiple countries and its affiliating vendors.

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1. INTRODUCTION

1.1 MOTIVATION

Over the past two decades a new industry of price comparison websites (PCWs) has emerged. The industry has enabled consumers to check the prices of many firms selling a particular service or product simultaneously in one place. This promises to be particularly helpful to consumers in a world where prices of even seemingly homogeneous items are typically dispersed.

The purpose of this project is to retrieve the data of some websites to make our work easy in our routine life activities like shopping.

This is a simple and easy to access that helps to know product details in short period of time. This is used to ignore usage of many websites for shopping.

1.2 PROBLEM STATEMENT

Price Comparator is used to know the details of the products like product name, product price according to the given category and name. This project can be used by any individual.

When the category and key word of the product are given the product name and price of the given websites are retrieved through this project.This is easy way to know the price of product than spending time on various websites.

Price Comparison project is used to compare the prices of a product from various online shopping websites to help the people to find the affordable price to buy the product and to analyse the fluctuations in prices.

2. EXISTING SYSTEM

Google Shopping

Google Shopping, formerly Google Product Search, Google Products and Froogle, is a Google service invented by Craig Nevill-Manning which allows users to search for products on online shopping websites and compare prices between different vendors. Google announced at its Marketing Live event in May 2019 that the new Google Shopping will integrate the existing Google Express marketplace into a revamped shopping experience. In the U.S, Google Shopping is accessible from the web and mobile apps, available on Android and iOS. Google Shopping is also available in France, accessible from the web only. Like its predecessor, Google Shopping is free and requires a personal Google account in order to purchase from the platform. A colored price tag icon replaces the parachute icon from Google Express.

Nextag

Nextag was an independent price comparison service website for products, travel, and education. It started originally as a website where buyers and sellers could negotiate prices for computers and electronics products. Since 2000, the current business model has focused on comparison shopping. NexTag also owns Hamburg, Germany based Guenstiger.de. It provides unique and accurate functionality of tracking historical prices of a product across various sellers.

3.PROPOSED SYSTEM

3.1 METHODOLOGY

urllib.request is a python module for fetching URLs (Uniform Resource Locators). It offers a very simple interface, in the form of the urlopen function. This is capable of fetching URLs using a variety of different protocols. It also offers a slightly more complex interface for handling common situations - like basic authentication, cookies, proxies and so on. These are provided by objects called handlers and openers.

urllib.request supports fetching URLs for many "URL schemes" using their associated network protocols (e.g. FTP, HTTP). This tutorial focuses on the most common case, HTTP.

For straightforward situations urlopen is very easy to use. But as soon as you encounter errors or non-trivial cases when opening HTTP URLs, you will need some understanding of the HyperText Transfer Protocol. The most comprehensive and authoritative reference to HTTP is RFC 2616. This is a technical document and not intended to be easy to read. This HOWTO aims to illustrate using *urllib*, with enough detail about HTTP to help you through. It is not intended to replace the docs, but is supplementary to urllip.request them.

HTTP is based on requests and responses - the client makes requests and servers send responses. urllib.request mirrors this with a request object which represents the HTTP request you are making. In its simplest form you create a Request object that specifies the URL you want to fetch. Callingurlopen with this Request object returns a response object for the URL requested.

The urllib module in Python 3 allows you access websites via your program. This opens up as many doors for your programs as the internet opens up for you. urllib in Python 3 is slightly different than urllib2 in Python 2, but they are mostly the same. Through urllib, you can access websites, download data, parse data, modify your headers, and do any GET and POST requests you might need to do.

Some websites do not appreciate programs accessing their data and placing weight on their servers. When they find out that a program is visiting them, they may sometimes choose to block you out, or serve you different data that a regular user might see. This can be annoying at first, but can be overcome with some simple code. To do this, you just need to modify the user-agent, which is a variable within your header that you send in. Headers are bits of data that you share with servers to let them know a bit about you. This is where Python, by default, tells the website that you are visiting with Python's urllib and your Python version. We can, however, modify this, and act as if we are a lowly Internet Explorer user, a Chrome user, or anything else really!.

Beautiful Soup is a Python library for pulling data out of HTML and XML files. It works with your favourite parser to provide idiomatic ways of navigating, searching, and modifying the parse tree. It commonly saves programmers hours or days of work with website data.

Web pages are structured documents, and Beautiful Soup gives you the tools to walk through that complex structure and extract bits of that information. In this guide, you will write a Python script that will scrape Craigslist for motorcycle prices. The script will be set up to run at regular intervals using a cron job, and the resulting data will be exported to an Excel spreadsheet for trend analysis. You can easily adapt these steps to other websites or search queries by substituting different URLs and adjusting the script accordingly.

The make_soup function makes a GET request to the target url and converts the resulting HTML into a BeautifulSoup object. The urllib3 library has excellent exception handling; if make_soup throws any errors, check the urllib3 docs for detailed information.

Beautiful Soup has different parsers available which are more or less strict about how the webpage is structured. The *lxml* parser is sufficient for the example script in this guide,but depending on your needs you may need to check the other options described in the official documentation.

An object of class Beautiful Soup is organized in a tree structure. In order to access the data you are interested in, you will have to be familiar with how the data is organized in the original HTML document. Go to the initial website in a browser, right click and select View page source (or Inspect**,** depending on your browser) to review the structure of the data that you would like to scrape.

3.2 FLOW CHART OF PROPOSED SYSTEM

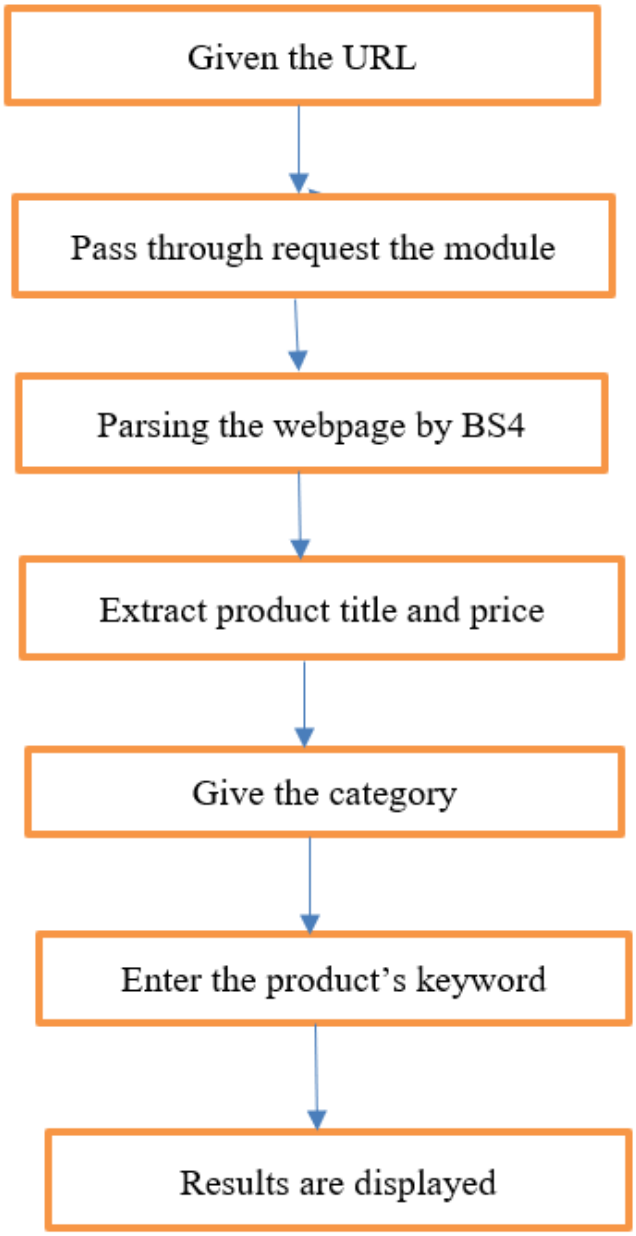

Fig 3.1 Flow chart of the price comparator

WORKFLOW

From the Fig 3.1 we get to know that at first the url is passed through the module to extract the items of the page. Then it parses the web pages of the given link using BS4. It only extracts the given number of pages and all these paths are contained in a python function. After this the module extracts the price of the product and name from the webpage. After the successful compilation the category need to be entered and at last the keyword name of the product need to be entered and the result is displayed in the python idle.

4. SOFTWARE AND HARDWARE REQUIREMENTS

The requirements specification is a technical specification of requirements for the software products. It is the first step in the requirements analysis process it lists the requirements of a particular software system including functional, performance and security requirements. The requirements also provide usage scenarios from a user, an operational and an administrative perspective.

The purpose of software requirements specification is to provide a detail overview of the software project, its and goals. This describes the project target audience and its user interface, hardware and software requirements. It defines how the client, team and audience see the project and its functionality.

4.1 PYTHON

Introduction

Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python's design philosophy emphasizes code readability with its notable use of significant whitespace. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including procedural, object-oriented, and functional programming. Python is often described as a "batteries included" language due to its comprehensive standard library.

Python is a fully-functional programming language that can do *anything* almost any other language can do, at comparable speeds.

Python was conceived in the late 1980s as a successor to the ABC language. Python 2.0, released 2000, introduced features like list comprehensions and a garbage collection system capable of collecting reference cycles.

Python 3.0, released 2008, was a major revision of the language that is not completely backward-compatible, and much Python 2 code does not run unmodified on Python 3. Due to concern about the amount of code written for Python 2, support for Python 2.7 was extended to 2020. Language developer Guido van Rossum shouldered sole responsibility for the project until July 2018 but now shares his leadership as a member of a five-person steering council.

Python is a fully-functional programming language that can do *anything* almost any other language can do, at comparable speeds.

Python is capable of threading and GPU processing just like any other language. Most of the data processing modules are actually just Python wrappers around C/C++ code.

"Modules" are pre-written Python code that you "import" in your Python program. Since there are many tasks that people commonly do, we have modules that people have written that do these tasks for you, and they usually do them in the cleanest and most efficient method possible. Sometimes you will see people refer to "DRY." This stands for Don't Repeat Yourself, which often also translates into "Don't Repeat Someone Else."

The phrase "wrapper" means that someone has placed, like a wrapper, Python code over another language. So, when you have a Python wrapper around C++ code, what someone has done is written some Python code that interacts with the C++ language. This allows you to make use of various aspects of the language being wrapped, in this case C++, without actually needing to know or understand that language.

Thus, Python can be used to make games, do data analysis, control robot and hardware, create GUIs, or even to create websites.

"GUI" stands for Graphical User Interface, and is used to describe a program that incorporates graphics to make the program more interactive for the user.

Features

Python provides lots of features that are listed below.

- Easy to Learn and Use

Python is easy to learn and use. It is developer-friendly and high level programming language.

- Expressive Language

Python language is more expressive means that it is more understandable.

- Interpreted Language

Python is an interpreted language i.e. interpreter executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.

- Cross-platform Language

Python can run equally on different platforms such as Windows, Linux, Unix and Macintosh etc. So, we can say that Python is a portable language.

- Free and Open Source

Python language is freely available at offical web address.The source-code is also available. Therefore it is open source.

- Object-Oriented Language

Python supports object oriented language and concepts of classes and objects come into existence.

- Extensible

It implies that other languages such as C/C++ can be used to compile the code and thus it can be used further in our python code.

- Large Standard Library

Python has a large and broad library and provides rich set of module and functions for rapid application development.

- GUI Programming Support

Graphical user interfaces can be developed using Python.

- Integrated

It can be easily integrated with languages like C, C++, JAVA etc.

5. IMPLEMENTATION

The project is based on the concept of web scraping. Web scraping is an automated method used to extract large amounts of data from websites. The data on the websites are unstructured. Web scraping helps collect these unstructured data and store it in a structured form. There are different ways to scrape websites such as online Services, APIs or writing your own code.

When you run the code for web scraping, a request is sent to the URL that you have mentioned. As a response to the request, the server sends the data and allows you to read the HTML or XML page. The code then, parses the HTML or XML page, finds the data and extracts it.

To extract data using web scraping with python, user need to follow these basic steps:

- Find the URL that you want to scrape
- Inspecting the Page
- Find the data you want to extract
- Write the code
- Run the code and extract the data
- Store the data in the required format

Libraries used for Web Scraping :

Selenium is a web testing library. It is used to automate browser activities.

Beautiful Soup is a Python package for parsing HTML and XML documents. It creates parse trees that is helpful to extract the data easily.

Pandas is a library used for data manipulation and analysis. It is used to extract the data and store it in the desired format.

The packages used are

- urllib.request
- bs4

The modules used are

- urlopen
- BeautifulSoup

Now let us discuss the tasks done by these packages and modules.The websites used to retrieve the data are flipkart, paytam mall, ebay. The functions define in the codeare flipkartMOBILE, paytmMallMOBILE, eBayMOBILE, flipkartTV, paytamMallTV, eBayTV which consists of the specified uniform resource locator of the websites.

To extract mobiles of flipkart:

The flipkart mobiles uniform resource locator is passed as a stringthrough urlopen, which actually open up the client connection and grab the flipkart web page.

It's going to dump everything out by reading the grabbed flipkart web page. As this is an open internet connection the client is closed after grabbing flipkart web page.

Parse the html by using BeautifulSoup module because right now the html is a big jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now flipkart inspect the web page to know the tag name and class name of product title to extract the product name, using findAll function which retrieves the product name of all the products in the flipkart web page and store it in a variable container.

Inspect the flipkart web page to know the tag name and class name of product price to extract the product price, using findAll function which retrieves the product price of all the products in the flipkart web page and store it in a variable container1

To extract tvs of flipkart:

The flipkart tvuniform resource locator is passed as a string through urlopen, which actually open up the client connection and grab the flipkart web page. It's going to dump everything out by reading the grabbed flipkart web page. As this is an open internet connection the client is closed after grabbing flipkart web page.

Parse the html by using BeautifulSoup module because right now the html is a big jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now flipkart inspect the web page to know the tag name and class name of product title to extract the product name, using findAll() function which retrieves the product name of all the products in the flipkart web page and store it in a variable container.

Inspect the flipkart web page to know the tag name and class name of product price to extract the product price, using findAll function which retrieves the product price of all the products in the flipkart web page and store it in a variable container1.

To extract mobiles of paytm Mall:

The paytm mall mobilesuniform resource locator is passed as a string through urlopen, which actually open up the client connection and grab the paytm mall web page. It's going to dump everything out by reading the grabbed paytm mall web page. As this is an open internet connection the client is closed after grabbing paytm mall web page.

Parse the html by using BeautifulSoup module because right now the html is a big jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now inspect the paytm mall web page to know the tag name and class name of product title to extract the product name, using findAllfunction which retrives the product name of all the products in the paytm mall web page and store it in a variable container.

Inspect the paytm mall web page to know the tag name and class name of product price to extract the product price, using findAll function which retrieves the product price of all the products in the paytm mall web page and store it in a variable container1 .

To extract tvs of paytm Mall:

The paytm malltvuniform resource locator is passed as a string through urlopen, which actually open up the client connection and grab the paytm mall web page. It's going to dump everything out by reading the grabbed paytm mall web page. As this is an open internet connection the client is closed after grabbing paytm mall web page.

Parse the html by using BeautifulSoup module because right now the html is a big jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now inspect the paytm mall web page to know the tag name and class name of product title to extract the product name, using findAll function which retrieves the

product name of all the products in the paytm mall web page and store it in a variable container.

Inspect the paytm mall web page to know the tag name and class name of the product price to extract the product price, using findAll function which retrieves the product price of all the products in the paytm mall web page and store it in a variable container1.

To extract mobiles of ebay:

The ebay mobiles uniform resource locator is passed as a string through urlopen, which actually open up the client connection and grab the ebay web page. It's going to dump everything out by reading the grabbed ebay web page. As this is an open internet connection the client is closed after grabbing ebay web page.

Parse the html by using BeautifulSoup module because right now the html is a big jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now inspect the ebay web page to know the tag name and class name of product title to extract the product name, using findAll function which retrieves the product name of all the products in the ebay web page and store it in a variable container.

Inspect the ebay web page to know the tag name and class name of the product price to extract the product price, using findAll function which retrives the product price of all the products in the ebay web page and store it in a variable container1 .

To extract tvs of ebay:

The ebaytvuniform resource locator is passed as a string through urlopen, which actually open up the client connection and grab the ebay web page. It's going to dump everything out by reading the grabbed ebay web page. As this is an open internet connection the client is closed after grabbing ebay web page.

Parse the html by using BeautifulSoup module because right now the html is a big

jumble of text. Call the soup function which was made earlier. And store it into a variable or else it's going to get lost.

Now inspect the ebay web page to know the tag name and class name of product title to extract the product name, using findAll function which retrieves the product name of all the products in the ebay web page and store it in a variable container.

Inspect the ebay web page to know the tag name and class name of product price to extract the product price, using findAll function which retrieves the product price of all the products in the ebay web page and store it in a variable container1 .

When the category is entered the functions are called automatically and enter the key word of the product name, which is passed as an argument to the functions,which is compared with the first word of the title and prints the product name and product price

6. RESULTS

From the Fig 6.1 we get to know that when category is Mobiles and Product name is Samsung the output is resulted as in the output screen.

Fig 6.1 Displaying the prices for Samsung Mobiles

From the Fig 6.2 we get to know that when hen category id TV and Product name is Sony the output is resulted as in the output screen.

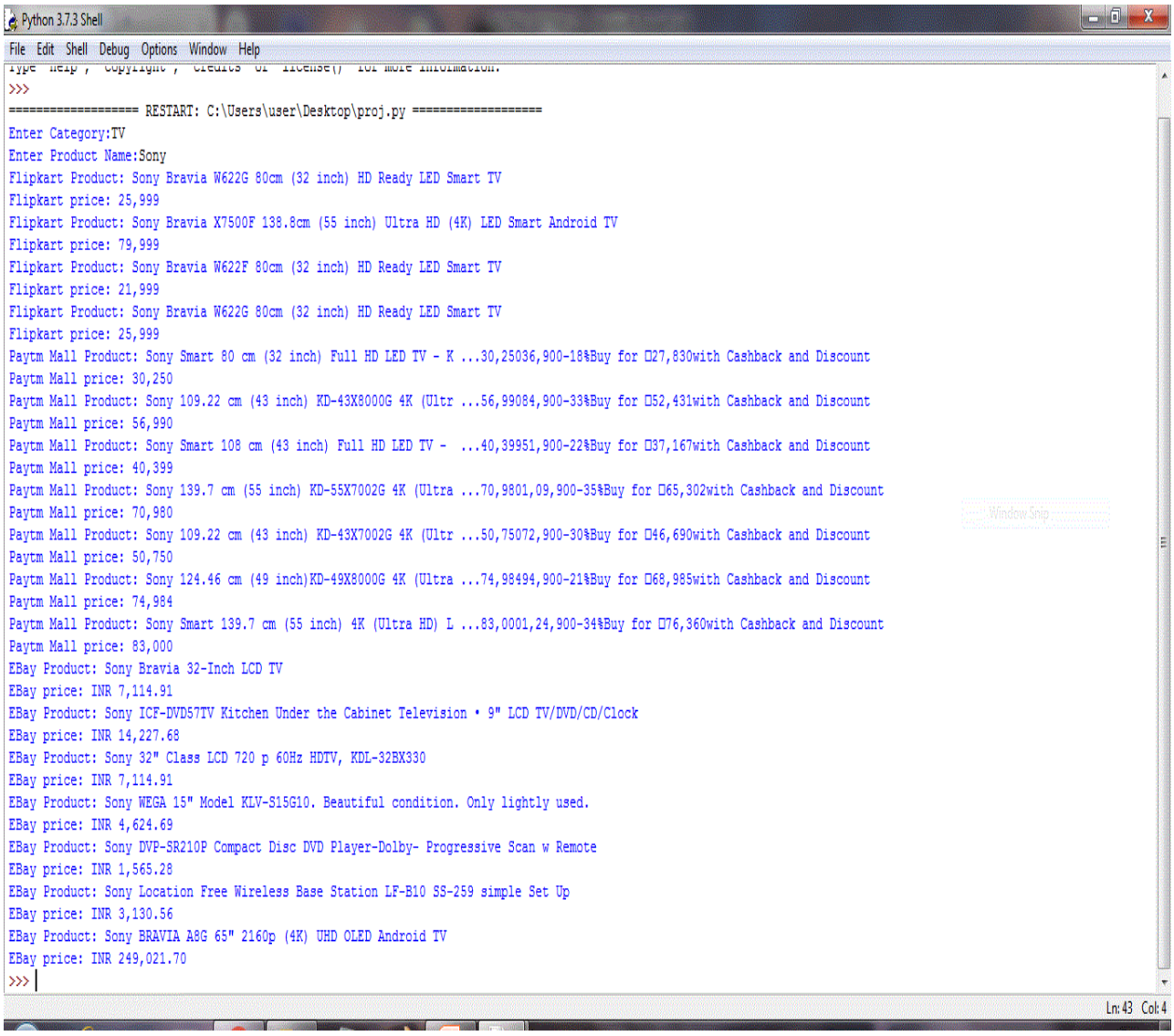

Fig 6.2 Displaying the prices for Sony TVs

7. CONCLUSION AND FUTURE SCOPE

We try to spend as much time as we can, to check whether we are buying a right thing or not? And the most important; whether we are buying it at a reasonable amount or not? Comparison sites are trying to achieve the ability to compare products. However, those sites are achieving this with varying levels of success.

Price Comparison project is used to compare the prices of a product from various online shopping websites to help the people to find the affordable price to buy the product and to analyse the fluctuations in prices of specific websites.

This project can be extended by comparing for more categories products such as electronic products, fashion products and also by providing customer reviews and designed as an android application.

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