"Stack Overflow Error Automation Tool"

A Project Report Submitted in Partial Fulfilment of the Requirements for the Degree
of
Bachelor of Technology
in
Computer Science & Engineering
By

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Objective

We will be creating a tool that will execute a Python program and check for errors during execution.

If there are errors, the tool will search for Stack Overflow threads that relate to the errors and open them as tabs in a web browser.

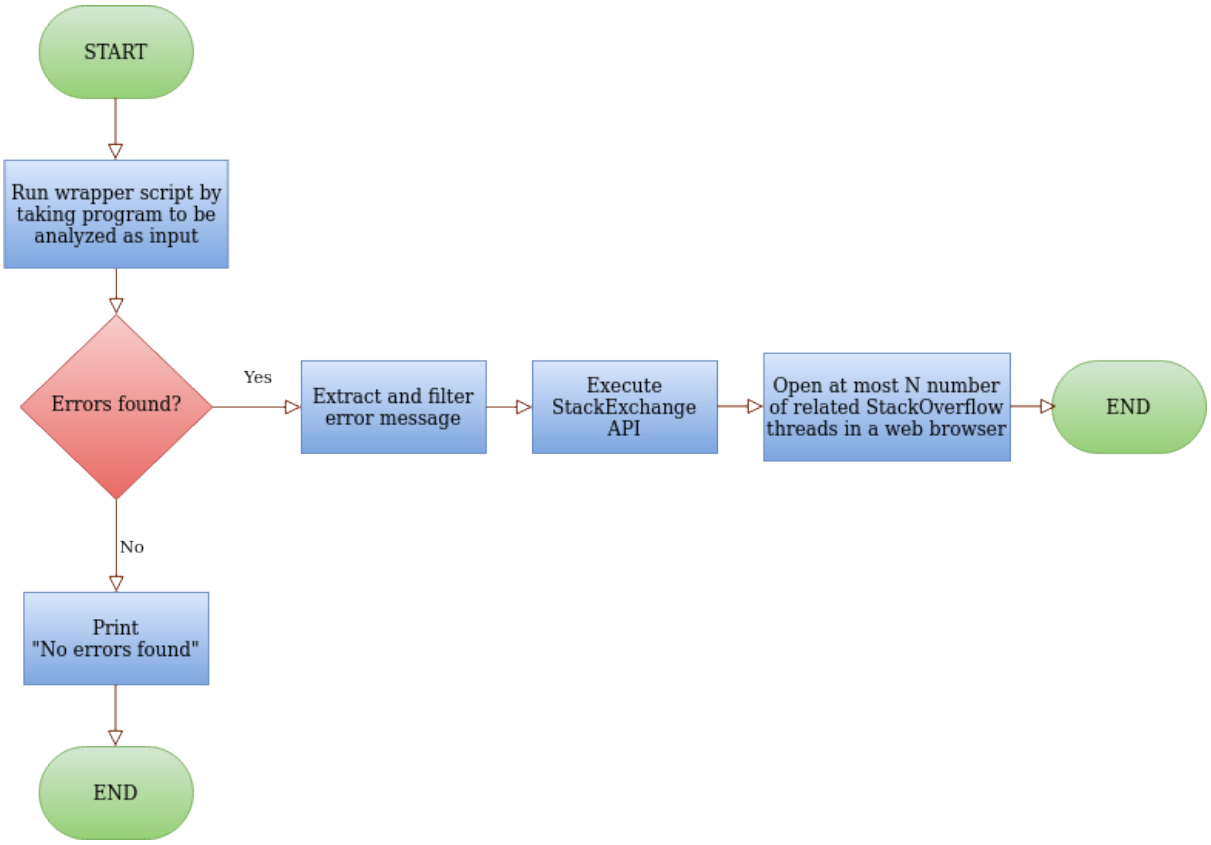
The main purpose of this project is for us to get an idea on how to efficiently use Stack Overflow API to get the required data from Stack Overflow.

Introduction

Stack Overflow is a source of helpful information for software development queries. A few years past its inauguration, Stack Overflow became one of the norms of software development and is now a fundamental component of software development culture.

While coding all of us get entangled in one or the other type of error very often. The general pattern of our everyday software development life involves coding and testing the code. In case we encounter errors, we search for them on Google, Stack Overflow etc. and fix them and continue this cycle till we get our code running the way we need.

FLOWCHART



- Using the Subprocess Module in your wrapper script to execute the test program.
- The data will contain details like file name, line number, wrong statement, the type of error, the error message, etc. We only need the type of error and the error message, hence we need to filter for the same.

Feasibility Study

Feasibility study is an important outcome of preliminary investigation, which is determination of whether the request is feasible or not.

During our preliminary investigation at college (Department of Computer Science) we examine that the Entire affaire concerned with the "Request" to develop a new project. After getting information we check that the information is technical, economical and operationally feasible or not.

The proposed system is reviewed considering three feasible studies, which are as follows:

- Technical Feasibility
- Financial Feasibility
- Operational Feasibility

➢ TECHNICAL FEASIBILITY

The Stack Overflow Error Automation Tool a tool that will check our Python program for errors by executing it and on encountering any errors, it will search for it on Stack Overflow and open up a few threads on browser.

➢ FINANCIAL FEASIBILITY

It has high financial feasibility since very low start-up capital is needed. All the software used are open-source and can be used for local purposes without any investment.

➢ OPERATIONAL FEASIBILITY

Modular code helps in code reusability.
Similar tool can be built for other languages such as C/C++, Java etc.
The tool will be published on GitHub as well.

Literature Review

➢ REFERENCES

1. Subprocess Management
2. How to use Subprocess popen in Python
3. Python Traceback
4. GET and POST requests using Python

5. Web browser convenient web browser controller
6. https://api.stackexchange.com/
7. https://code.visualstudio.com/
8. https://www.python.org/

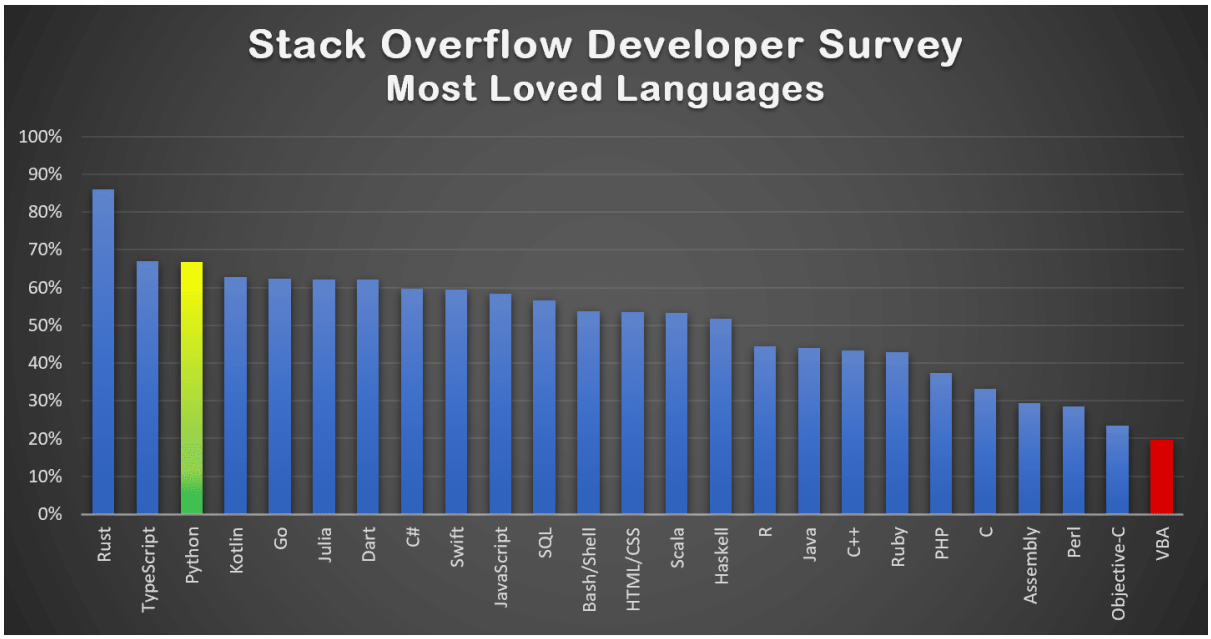
➢ EXPECTED OUTCOME

To come up with a python script that executes my test python program. In case any error pops up, it should be able to extract the error type and the error message.

TECHNOLOGY USED

➢ PYTHON

Python is a general-purpose programming language, so it can be used for many things. Python is used for web development, AI, machine learning, operating systems, mobile application development, and video game. Python has a large standard library which provides a rich set of modules and functions so we don't have to write code for every single thing. Also it is open-source i.e. it's source code is public.



➢ STACK OVERFLOW

Stack Overflow is a question and answer website for professional and enthusiast programmers.

To use the Stack Exchange API's search feature and open up a few Stack Overflow threads that relate to the error.

Stack Exchange API is REST service that takes an URI Query String request based on HTTP/HTTPS and returns JSON/JSONP

response enabling users to retrieve questions, answers, comments, badges, events, revisions, suggested edits, user information, and tags from the site.

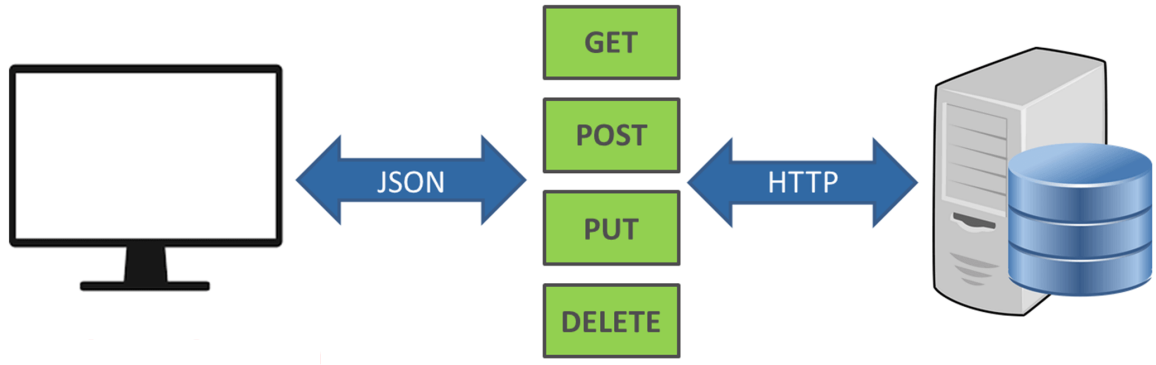
➢ VISUAL STUDIO CODE

Visual Studio Code is a **streamlined code editor with support for development operations like debugging, task running, and version control**. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workflows to fuller featured IDEs, such as Visual Studio IDE.

Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications.

➢ REST & HTTP

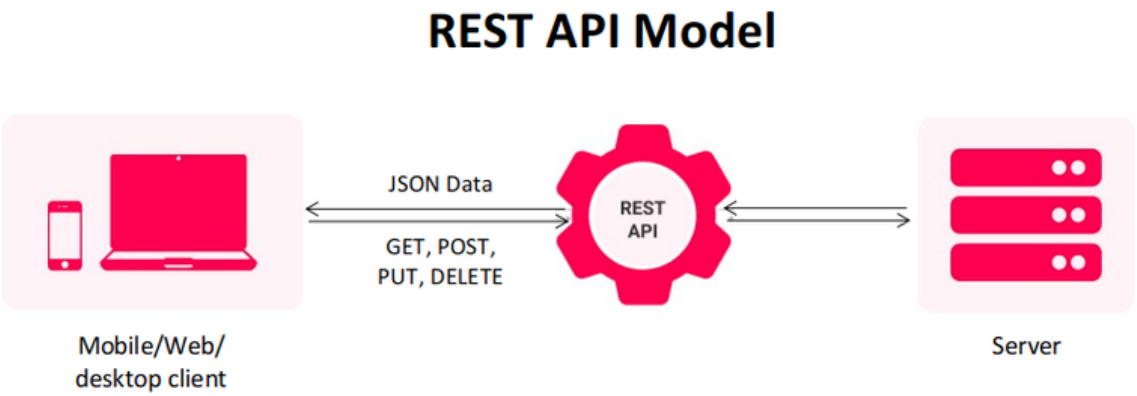
HTTP is a protocol used for communication, usually used to communicate with internet resources or any application with a web browser client.



Client sends a **request** **HTTP methods** Server sends a **response**

A REST API (also known as RESTful API) is an application programming interface (API or web API) that conforms to the constraints of REST architectural style and allows for interaction with RESTful web services. REST stands for Representational State Transfer. REST is just a set of rules about how to use HTTP.

Hardware & Software



REQUIREMENTS

- ✓ HARDWARE
  1. I3 processor
  2. 2GB RAM
- ✓ LIBRARIES AND RESOURCES
  1. Api.stackechange.com
  2. Subprocess python
  3. Webbrowser python module
  4. REST api
- ✓ OS -> Windows 7+

- ✓ SOFTWARE
  1. VSCode
  2. Python 3+
  3. Web Browser

CODE

```
from subprocess import Popen , PIPE

import requests
import webbrowser

def execute_return(cmd):
    args= cmd.split()
    proc= Popen(args , stdout=PIPE , stderr=PIPE)
    out, err= proc.communicate()
    return out,err

def make_req(error):
    print("searching for: "+error)
    response=requests.get("https://api.stackexchange.com/"+"/2.3/search?order=
desc&sort=activity&tagged=python&intitle={}&site=stackoverflow".format(error))
    return response.json()

def get_urls(json_dict):
    url_list=[]
    count=0
    for i in json_dict["items"]:
        if i["is_answered"]:
            url_list.append(i["link"])
        count+=1
        if(count==3 or count==len(i)):
            break

    for i in url_list:
        webbrowser.open(i)


if __name__ == "__main__":
    filepath=input("Drop the file you're wroking on: ")
    op,err=execute_return("Python {}".format(filepath))
    error_message=err.decode("utf-8").strip().split("\r\n")[-1]
```

```
    print("ERROR-->",error_message)

    if error_message:
        filter_err=error_message.split(":")
        json1=make_req(filter_err[0])
        json2=make_req(filter_err[1])
        json=make_req(error_message)
        get_urls(json1)
        get_urls(json2)
        get_urls(json)

    else:
        print("No error")
```

main.py

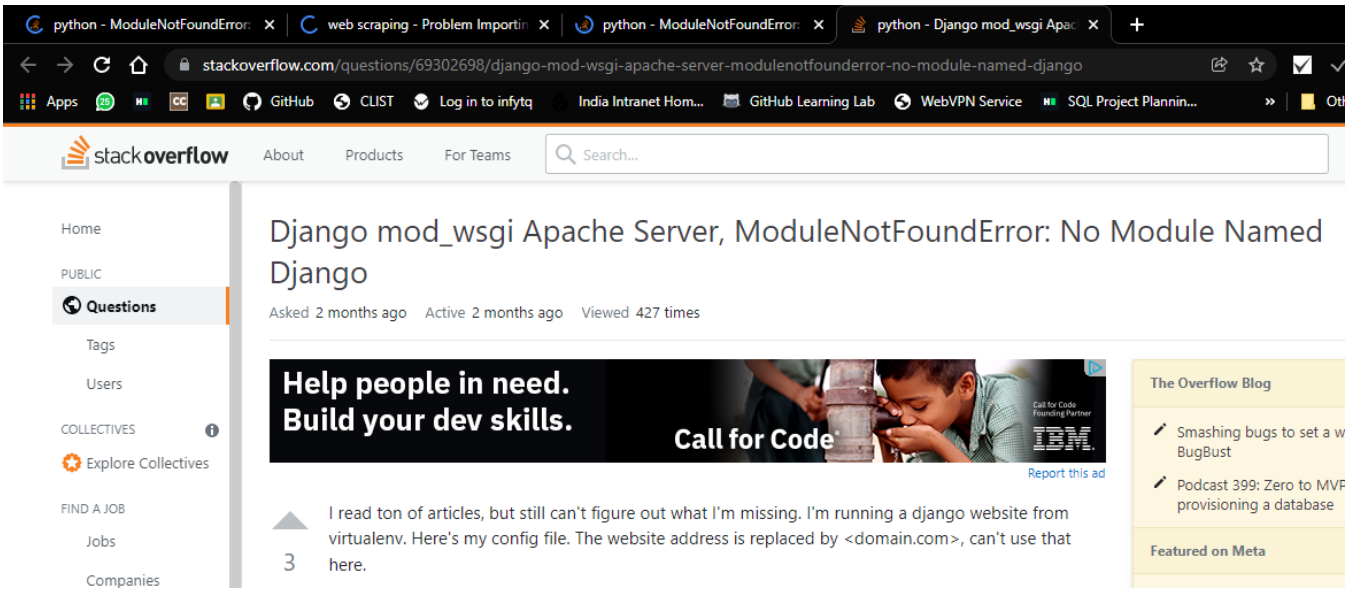
```
import django
```

test1.py

```
tuplee=(2,3,4,5)
tuplee[0]=9
print(tuplee)
```

test2.py

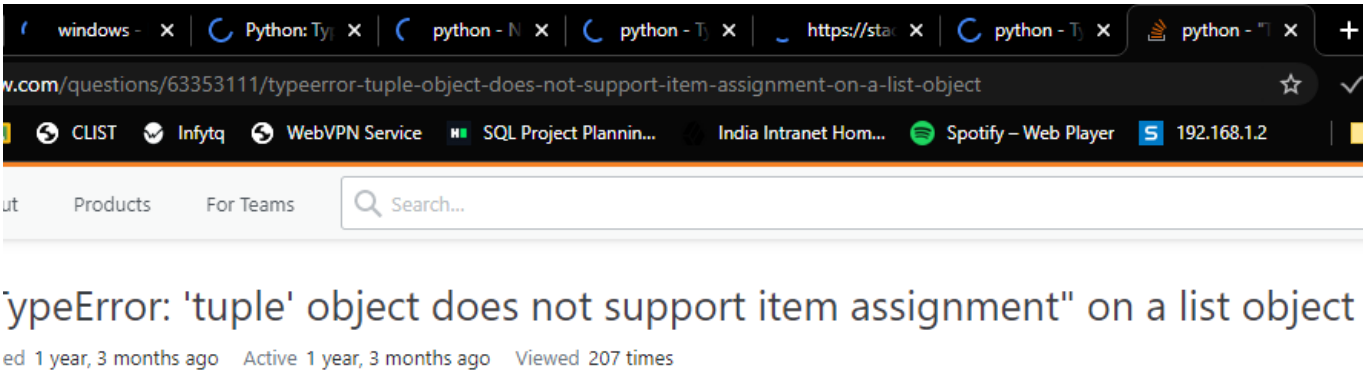
OUTPUT 1



Output 2

```
PS D:\User~Tushar\Python progs> python -u "d:\User~Tushar\Python progs\main.py"
Drop the file you're wroking on: test.py
ERROR--> TypeError: 'tuple' object does not support item assignment
searching for: TypeError
searching for:  'tuple' object does not support item assignment
searching for: TypeError: 'tuple' object does not support item assignment
PS D:\User~Tushar\Python progs>
```

Terminal



Tabs opened in default web browser

Conclusion

On Completion of earlier milestones, we developed a tool that can help you in case you encounter errors in python code.

Future Scope

- To update it so as to extract errors in other high-level languages as well like C/C++, Java, Go etc.
- To create a browser compatible extension to detect errors on the tab.
- To built it for other operating systems like Linux, Macintosh etc.
- To develop a desktop application version to extract errors from other terminals like git bash, command line etc.