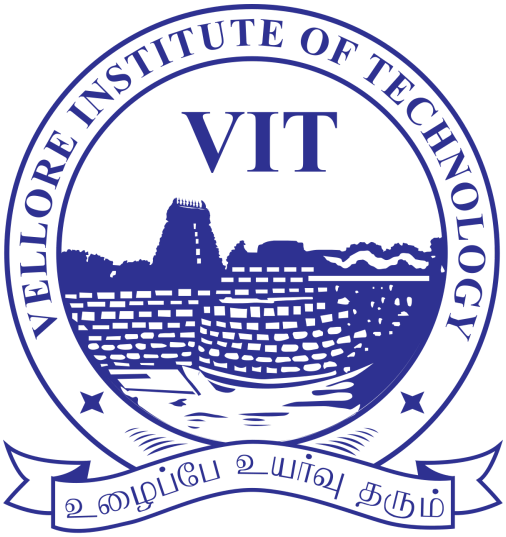
REPORT ON

GDG 2 CREDIT COURSE



Submitted By: Anmol Srivastava
Registration Number: 15BCE0968

Task:

Create an API using Flask or any framework you are comfortable with (Flask is easy to learn) and scrape the GSOC website to fetch details of all the organizations in Google summer of codes and in the api send their name, link to their website, description (which comes on clicking learn more), The technologies they use and their contact email.

Abstract:

Using Flask and web libraries, the data has been stored and returned in JSON format so that it could be easily consumed by applications (web/mobile).

Introduction:

I've used Flask (a web micro framework) to write the API which handles the requests on GET parameter and the URL endpoints that GSOC website uses to fetch the data.

Code:

```
from flask import Flask
import flask
import requests
import json
app = Flask(__name__)


@app.route('/')
def hello():
    data = []
    for i in range(1,6):
        r =
requests.get("https://summerofcode.withgoogle.com/api/program/current/organization/?pa
ge="+str(i)+"&page_size=48").json()
        for j in r["results"]:
            orgData = {
                'organization' : j['name'],
                'link' : j['website_url'],
                'description' : j['description'],
                'technologies' : j['technology_tags'],
                'contact': j['contact_email']

            }
            data.append(orgData)
    return flask.jsonify(result=data)

if __name__ == '__main__':
    app.run()
```

Result:


```
{
 "result": [
   {
     "contact": "johannes.schauer@uni-wuerzburg.de",
     "description": "The 3D Toolkit is a collection of programs that allow working with 3D point cloud data. The tools include a powerful and efficient 3D point cloud viewer called \"show\" which is able to open point clouds containing millions of points even on older graphics cards while still providing high frame rates. It provides bindings for ROS, the Robotic Operating System and for Python, the programming language. Most of the functionality of 3DTK is provided in the form of \"tools\", hence the name which are executed on the command line. These tools are able to carry out operations like simultaneous localization and mapping (SLAM), plane detection, transformations, surface normal computation, feature detection and extraction, collision detection and dynamic object removal. We support Linux, Windows and MacOS. 3DTK contains the implementation of several complex algorithms like multiple SLAM and ICP implementations as well as several data structures like k-d trees, octrees, sphere quadtrees and voxel grids. The software is home of the implementation of algorithms from several high impact research papers. While the Point Cloud Library (PCL) might be dead, 3DTK is alive and actively maintained by an international team of skilled researchers from all over the world, ranging from Europe to China. Know-how from 3DTK influenced several businesses from car manufacturers to mineral excavation or archaeological projects.",
     "link": "http://threedtk.de",
     "organization": "3DTK",
     "technologies": [
       "c/c++",
       " cmake",
       "opencv",
       "ros",
       "boost"
     ]
   },
   {
     "contact": "gsoc@52north.org",
     "description": "[52°North](http://52north.org) is an international research and development partner network with partners from academia, the public sector and
```

industry. Our goal is to foster innovation in the field of geoinformatics by organizing and facilitating a collaborative software development process. The topics we address comprise for example sensor web technologies, the web of things, linked open data, spatial data infrastructures, citizen science, earth observation, and 3D. This selection of topics reflects both the strengths and strategies of the partners involved.\nSome of our software projects are enviroCar, 52°North SOS, 52°North JavaScript Sensor Web Client, ILWIS, and 52°North WPS. Check out our GitHub organization and our Ohloh page to learn more about the wide range of software our communities work on: from mobile apps to standardized web services, from cutting edge research to established products. 52°North open source projects are used in a broad range of domains (e.g. oceanology, air quality, hydrology, traffic planning) and operational as well as research projects (e.g. European Horizon 2020 projects such as NeXOS, FixO3, WaterInnEU, ODIP II).\nAll of the 52°North software is published under an OSI approved open source license.\n52°North GmbH, which is the legal body and service center of the network, acts as a non-profit organization. This means that the shareholders of 52°North do not receive profit shares or payments from company funds. Instead, the profits earned by 52°North are completely re-invested into the innovation and software development process.",
    "link": "https://52north.org/",
    "organization": "52° North Initiative for Geospatial Open Source Software GmbH",
    "technologies": [
      "javascript",
      " java",
      "spring",
      "r",
      "big data"
    ]
  },
  {
    "contact": "gsoc2018with@aerospaceresearch.net",
    "description": "We are AerospaceResearch.net, a small team of space makers solving space problems together with Small Satellite Student Society University o Stuttgart (KSat e.V.) and the Cosmic Dust Team.\n\nIn 2011, we started as a student group at the University of Stuttgart to provide massive computing power with our distributed computting platform Constellation to everyone needing it for space simulations. Over time, we attracted international young professionals of the space industry and the local maker community and thus becoming a full fletched citizen science project.\n\nWe are a community project of several Projects working of different Teams in Stuttgart and globally. Together with the Small Satellite Student

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Society University o Stuttgart (KSat e.V.) , the Distributed Ground Station Network Team at the Institute for Photogrammetry and the Cosmic Dust Team of the Institute for Space Systems at University of Stuttgart, we are working on the rover mission ROACH crawling for maintenance reasons on the outer hull of a sounding rocket while coasting in near space, tracking cubesats faster than US NORAD and simulating cometary dust particles for the IMEX project of the European Space Agency (ESA).\n\nWe are a small organization but having impact within out space community and helping realizing space exploration by creativity and open access. We are open for everybody interested in space for the \nbetterment of everybody.",
    "link": "http://www.aerospaceresearch.net",
    "organization": "AerospaceResearch.net",
    "technologies": [
      "python",
      "c/c++",
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      " java"
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  {
    "contact": "peter.norvig+gsoc@gmail.com",
    "description": "This project provides implementations of the pseudocode algorithms in the textbook \"Artificial Intelligence: A Modern Approach,\" along with tutorial examples of their usage, emphasizing visualizations that help students understand both the core underlying concepts and the specific ways to invoke the code.",
    "link": "http://github.com/aimacode",
    "organization": "aimacode",
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    "contact": "gsoc@amahi.org",
```

```
    "description": "The Amahi Linux Home Server makes your home networking and storage simple. We like to call the Amahi servers HDAs, for \"Home Digital Assistants.\" Each HDA delivers all the functionality you would want in a home server, while being easy to use from a web browser and mobile apps.\n\nAmahi can turn popular Linux distributions into a simple to use networking, storage and app server. The server management is done through a friendly user interface (the \"platform”). The platform allows controlling users login and storage access permissions, managing some network services like DHCP and DNS, as well as providing many apps that the users can install. The platform web interface is implemented in Ruby on Rails and runs in the web server along with other apps.\n\nThe installation process is done by installing the base distribution (Fedora at the moment) and after that, running the Amahi installer at the command line.\n\nOnce the installation is complete, the network services kick in, storage can be used and applications are installed by users. Some applications are Plugins (developed as an RoR \"engine\") and some are very popular open source apps and services.",
    "link": "http://www.amahi.org",
    "organization": "Amahi",
    "technologies": [
      "ruby on rails",
      "golang",
      "swift",
      "javascript",
      "android"
    ]
  },
  {
    "contact": null,
    "description": "We are an Australian not-for-profit umbrella organization for open-source projects. We believe the open-source philosophy provides a resource-efficient channel to transfer knowledge and achieve innovation and education.\n\nIn 2018, we offer the following projects:\n\n* **Agora** (Scala): a library of vote counting algorithms for democratic elections.\n* **Scavenger** (Scala): an automated theorem prover for first-order logic.\n* **Mind the Word** (JavaScript, HTML, CSS): a browser extension that helps users to learn new languages.\n* **Carbon Footprint** (JavaScript, HTML, CSS): a browser extension that raises environmental awareness regarding C02 emissions.\n* **Carbon Footprint - Mobile App** (React Native, Android, iOS): a mobile app that raises environmental awareness by tracking user activity and calculating carbon footprints.\n* **Carbon Footprint - API** (JavaScript(Node.JS), MongoDB): A REST API that calculates Carbon Footprints of
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anything measurable.\n* **Computational Philosophy** (Isabelle): formalizations of philosophical theories and arguments towards computer-assisted metaphysics, as envisaged by Leibniz.\n* **Stardroid (a.k.a Google Sky Maps)** (Android/iOS): Sky Map is a hand-held planetarium for your Android device. Can be used to identify stars, planets, nebulae and more.\n* **CrowdAlert** (React Native, Android, iOS): a cross-platform mobile application that allows users to post and view incidents around them.\n\nWe have a diverse group of mentors, including GSoC students from previous years who decided to become long-term contributors as well as academics with extensive experience in supervising undergraduate, M.Sc. and Ph.D. students on theses and projects, whose results are often published and presented in the most prestigious conferences of our research fields.\n\nWe are looking for excellent students who are interested in becoming long-term collaborators in our projects. If you are a prospective student interested in doing your GSoC project with us, drop us a line and start contributing.",
     "link": "http://aossie.org/",
     "organization": "AOSSIE - Australian Open Source Software Innovation and Education",
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       "scala",
       "isabelle proof assistant",
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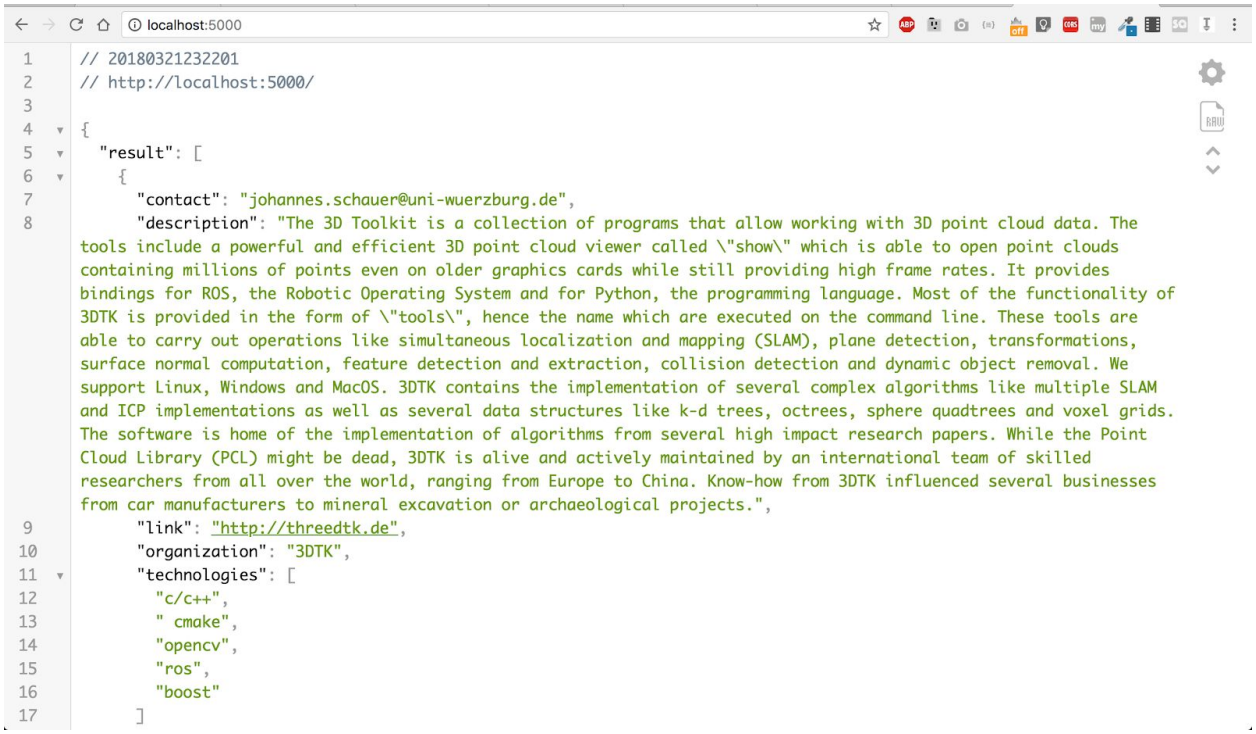
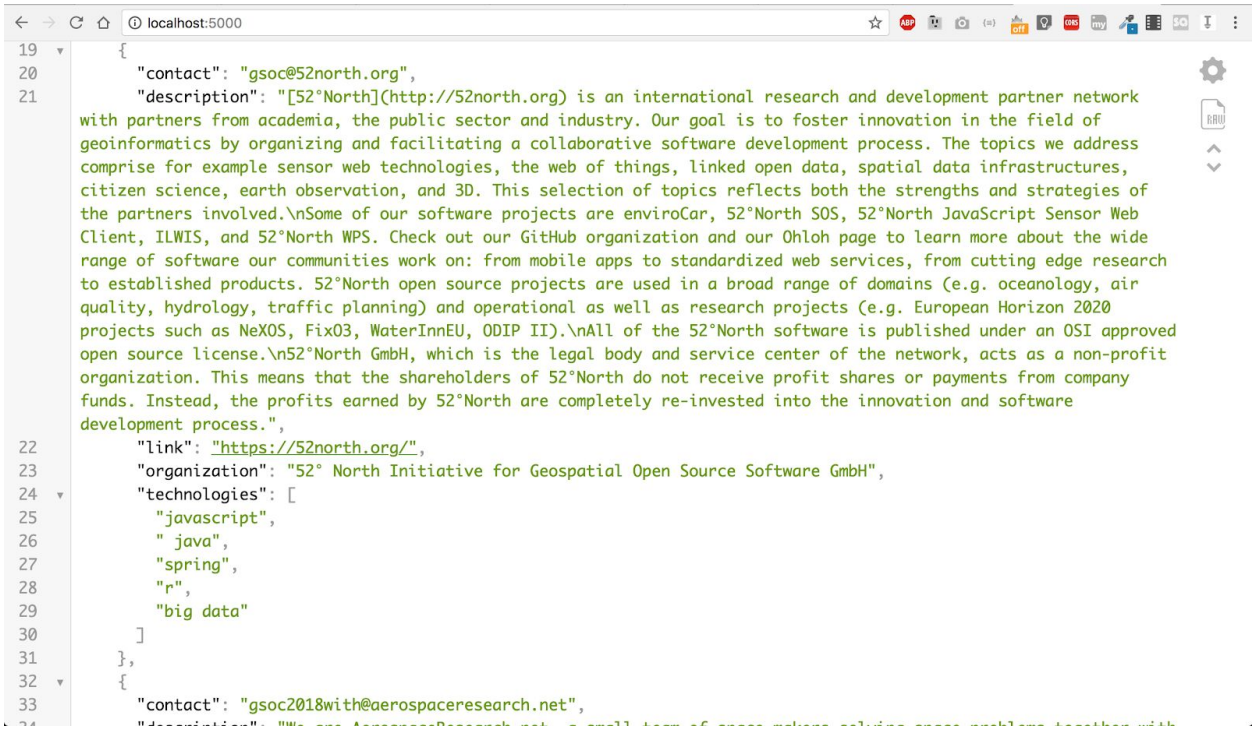
```


…….. And so on

Screenshots:





Conclusion

I've learned web scraping, developing APIs, and backend tools that could serve various platforms. I've also learned about JSON, a central and convenient format of data communication.

References:

- https://docs.python-requests.org
- www.pythonforbeginners.com/requests/using-requests-in-python
- https://flask.pocoo.org