Python Development

A SUMMER TRAINING REPORT
Submitted by
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19BCS4525

in partial fulfilment of Summer training for the award of the degree

of

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE and ENGINEERING

APEX INSTITUTE OF TECHNOLOGY
CHANDIGARH UNIVERSITY, GHARUAN
Mohali, Punjab

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To,
Mr. Rishabh Anand
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Reference,

This is to certify that **Mr. Rishabh Anand**, has competed his internship with Kamtech Associates Pvt. Ltd, for the period of 3 Months from 15 th April 2021 to 19th July 2021 via remote working as a **Python Developer.**

Mr. Anand was involved with different projects in the areas of Software Development. He worked on the following topics:

Software Development:
- Dynamic CV creation using HTML,CSS & JavaScript
- Development of web application, **Bidfast** (A Tender Automation Tool) using Django
- Dynamic creating word files using Jinja templates
- Data extraction from live webpages using Selenium
- Generating MCQ database with more than 10,000 MCQs

Technologies Worked on:
Python 3.7, Django framework, Jinja templates, Python docs, Git, PyPDF, My SQL.

The work results of Mr. Anand were always of good quality. We were always fully satisfied with Mr. Anand's good performance and commitment.

We would like to thank Mr. Anand for the internship and wish him all the best for the future, both personally and professionally.

With best wishes,
for **Kamtech Associates Pvt. Ltd.,**

(Saksham Gupta)
Director, Supervisor
(saksham.gupta@kamtech.in)

Acknowlgement

I thank everyone who were, in one way or another, instrumental in the completion of my internship at Kamtech Associates Pvt. Ltd.

First, I would like to thank Mr. Samir Dutta for taking me under his wing during my time at Kamtech and supervising me. I would also like to thank Mr. Saksham Gupta for giving me an oppourtunity to work at his company and his projects.

I also want to give my thanks to all the fellow developers and consultants as well as my fellow interns and teammatesat Kamtech, who were extremely helpful and supportive throughout my time there.

A special thanks to my parents who took care of me and provided me with all the necessary tools I required during my internship tenure.

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ABSTRACT

I worked on various project under my 13 week tenure as a Python Developer at Kamtech Associates Pvt. Ltd. like :

Built a website using **Django / Python** as back-end and **HTML 5 / CSS 3** as front-end. The site, BidFast, first-of-its-kind Tendering Automation Tool, which automates the tedious process of creating technical proposals in response to procurement notices (RFP, EOI and RFQ) published by various procurement agencies (UNDP, UNGM, AfDB, TED, etc.)

The Django tool was based on a dynamic hierarchical model of the company where it was being deployed to. However, the basic structure / access remained the same. A central admin, who can add / remove as well as control the access of various department admins for tendering. The various depratment admins then control the file structure for the tender and create the CV, which is also dynamic. Then, the tool manages to assemble the whole document using **Jinja templates** and **PyDocs**.

Deployed the same website as an onsite tool on industrial servers for core companies like **Accenture** and **KPMG**.

Worked on web-scraping, using **Selenium / BeautifulSoup** and **Jupyter** and data collation scripts to generate an end to end yearly medical database for **Rajasthan Foundation**, which included records, for the total population, like their medical insurances and the grant given by the government for those who can't afford their bills.

Generated a database for **Edubild** website, a subset of Kamtech. The database consists of 10,000+ MCQs scraped from various websites like Sanfoundary and Tutorials Point. The script successfully generated a database for all the MCQs with answer key which was then deployed to take tests of individuals on the Edubild site.

Contents

INTRODUCTION

Kamtech Associates Private Limited is a a technology based consultancy and solutions company working across industry and business domains operating in emerging and mature economies like Africa, Europe, Middle East and Asia and a two-time National Award winner by Government of India.

A subset of Kamtech Associates is **EduBild**. Among the many projects that were undergoing in the company at that moment, I got to work mainly on BidFast, which is the simplest tool for your tendering needs.

BidFast has the capability to automate the generation of complete tenders for various types of proposals like RFPs,RFQs, RFIs, EOIs, RFx along with business proposals for your company. It has a one-time content creation and storage management system that ensures minimum human interaction and safety for your precious data on a fundamental level.

The one of a kind content management system that I personally worked on ensures effortless document creation. It ensures that there is absolutely no more mindless copying and pasting, no more outdated documents/files and no more room for human errors what-so-ever. BidFast offers well structured content management for all your tender documents.

Apart from BidFast I also worked on some small web-scraping assignments which included some advanced web-crawling and automated dataset generation for EduBild's experienships tests and selections. The dataset generqated was directly uploaded to their server and the test results and selections were taken for more than 500 participants/applicants.

THEORY

During my tenure, I used a number of python libraries like :

- Flask

  - Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions

  - The tool BidFast was first create dusing Flask. It was serving the purpose but then the whole system was switched to Django, mainly due to Flask's scalability issues.

- Django

  - Django is a Python-based free and open-source web framework that follows the model–template–views architectural pattern.

  - The tool BidFast was re-created using BidFast with better UI/UX, faster workflow and even more versatility.

  - After switching to Django, we had to add support for databases and make a better frontend for the overall project. **SQLAlchecmy**, an open-source SQL toolkit and object-relational mapper for the Python programming language released under the MIT Licens, was used for creating/managing the database layer. It provides agood wrapped environment for SQLs inside python. The database framework used was **sqlite** because of it's simplicity and speed.

  - Apart from the backend, the front-end was also redesigned keeping with the newer framework with help nof **BootStrap**,Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development, which contains CSS- and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components,

which offers templated and well documented html/css snippets for faster website creation.

- Selenium

  - Selenium is an open-source automated testing framework for web applications. Selenium provides a playback tool for authoring functional tests without the need to learn a test scripting language.

  - The usage of Selenium is standarized for web automation at this point in the market. Selenium is basically used to automate the testing across various web browsers. It supports various browsers like Chrome, Mozilla, Firefox, Safari, and IE.

- BeautifulSoup

  - Beautiful Soup is a Python package for parsing HTML and XML documents. It creates a parse tree for parsed pages that can be used to extract data from HTML, which is useful for web scraping.

  - It basically parses a HTML or XML web-page and generates a minimal text only content tree for the web-pages it's being used on for data extraction and string conversion.

- Others

  - Pillow - In automatic CV generation, Pillow was used at times for images processing and page manipulation.

  - Jinja - Jinja is a document-tagging and temporary placeholder generator package that switches tags in document with the specified string provided at runtime.

  - PyDocs - Python wrappper for Docx generation and manipulation. Works with most MS-Office formats and a few Open-Source Document formats.

METHODOLOGY ADOPTED

RESULTS and DISCUSSION

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CONCLUSIONS

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APPENDIX

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