Industrial Internship Report on

URL SHORTENER USING PYTHON

Prepared by

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Executive Summary

This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT).

This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 6 weeks' time.

My project was about to create a URL shortener using Python standard libraries and frameworks and databases.

This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

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1 PREFACE

During the 6 weeks summer internship program I worked on developing the project URL shortener assigned by Upskill Campus.

This internship helped me develop my python skills and its frameworks and libraries. I learnt MYSQL Database during the project, which can be used in almost all web apps and projects. The URL shortener project focuses on shortening large URL's we encounter in our daily lives.

As shortening URL's is much needed for better user experience and convenience. I used many URL shorteners earlier but after selecting this project I started using my own URL shortener. The craze of this application motivated to develop my own URL shortener. This Internship was offered by Upskill Campus and UCT to help me hone my skills.

The program was planned in a perfect way to help interns learn and apply their skills.
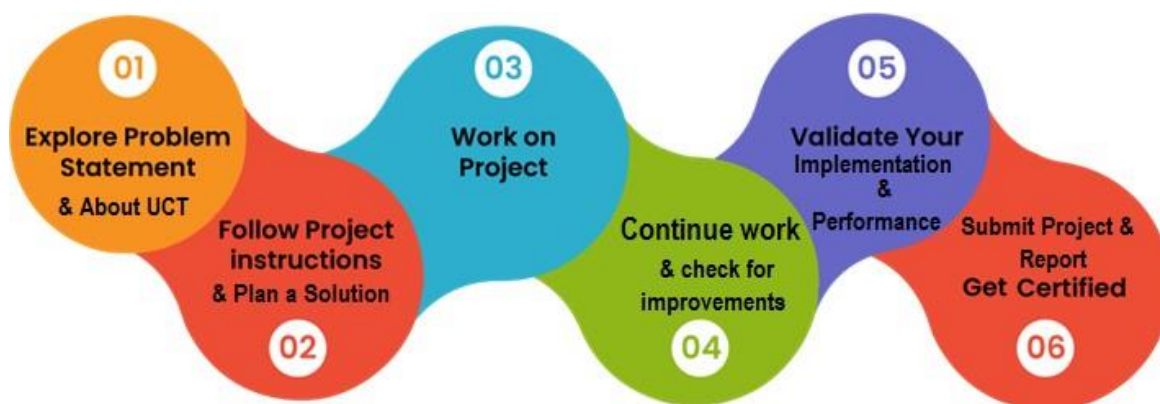
Throughout the internship I focused on learning as much as possible and develop my programming skills and improved my knowledge on how databases work, how to access databases and use them for storage purposes.

Thanks **to Kaushalendra Singh Sisodia** Sir (**Director, UCT**) for the opportunity and mentor **Apurv** Sir and constantly guiding me throughout the internship.

1.1 ABOUT UNICONVERGE TECHNOLOGIES PVT LTD

A company established in 2013 and working in Digital Transformation domain and providing Industrial solutions with prime focus on sustainability and RoI.

For developing its products and solutions it is leveraging various **Cutting Edge Technologies e.g., Internet of Things (IoT), Cyber Security, Cloud computing (AWS, Azure), Machine Learning, Communication Technologies (4G/5G/Lora WAN), Java Full Stack, Python, Front end** etc.


i. UCT IoT Platform (uct Insight)

UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable "insight" for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSQL Databases.

- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA

- It supports both cloud and on-premises deployments.

It has features to
• Build Your own dashboard
• Analytics and Reporting
• Alert and Notification
• Integration with third party application (Power BI, SAP, ERP)
• Rule Engine
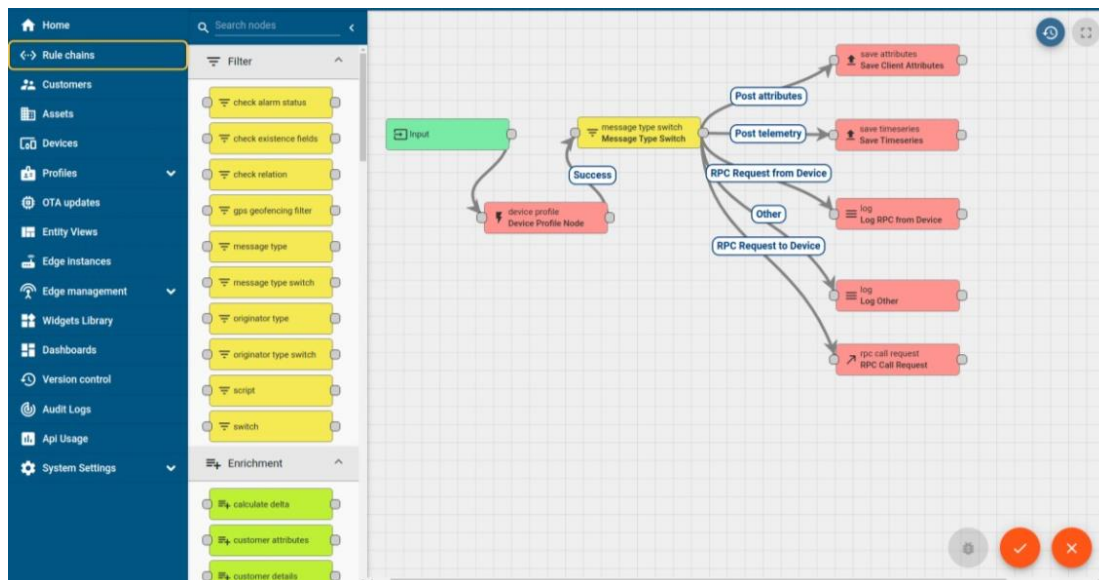
ii. Smart Factory Platform (FACTORY WATCH)

Factory watch is a platform for smart factory needs.

It provides Users/ Factory

- with a scalable solution for their Production and asset monitoring

- OEE and predictive maintenance solution scaling up to digital twin for your assets.

- to unleased the true potential of the data that their machines are generating and helps to identify the KPIs and improve them.

- A modular architecture that allows users to choose the service that they what to start and then can scale to more complex solutions as per their demands.

Its unique SaaS model helps users to save time, cost and money.

iii. LoRaWAN based Solution

UCT is one of the early adopters of Lora WAN technology and providing solution in Agritech, Smart cities, Industrial Monitoring, Smart Street Light, Smart Water/ Gas/ Electricity metering solutions etc.

iv. Predictive Maintenance

UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.
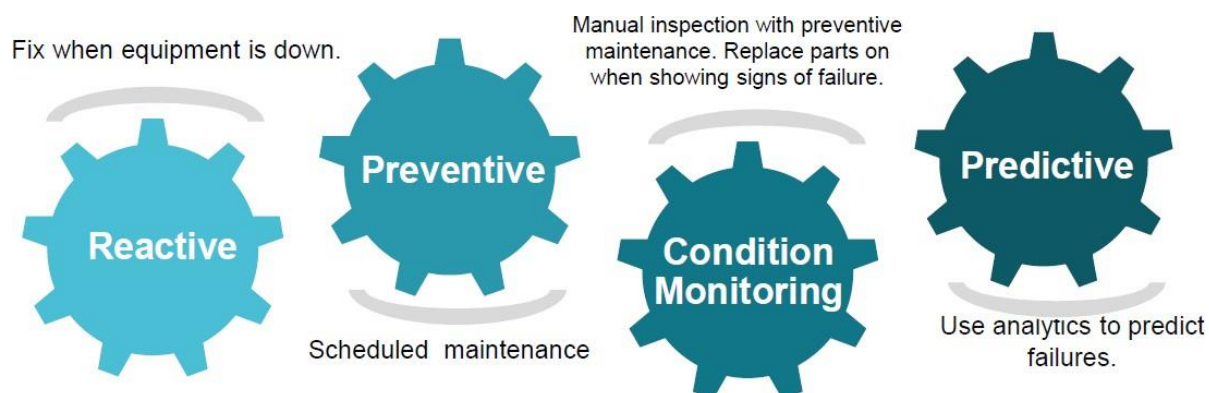
1.2 ABOUT UPSKILL CAMPUS (USC)

upskill Campus along with The IoT Academy and in association with Uni Converge technologies has facilitated the smooth execution of the complete internship process.

USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.

https://www.upskillcampus.com/
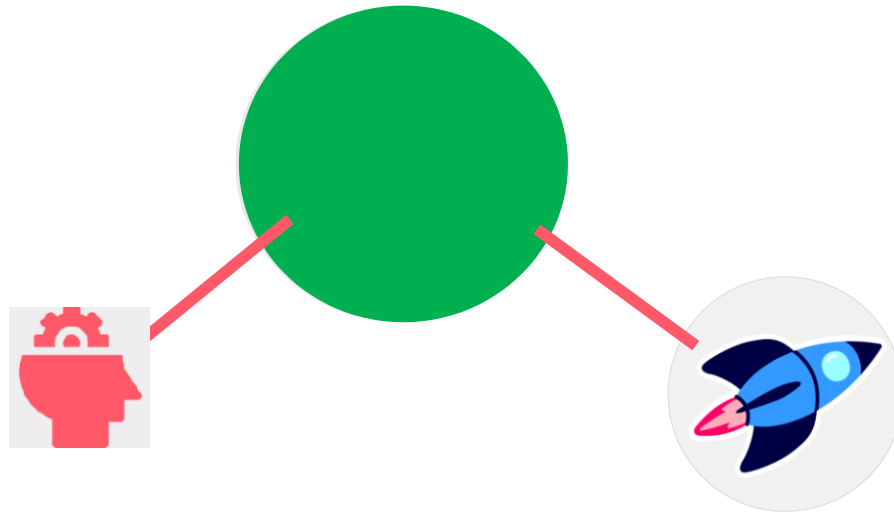
Career growth/upskilling
- Interview Preparation and skill building
- upskilling Courses
- Skill Assessment
- Profile building

Professional networking
- Alumni Connections
- Mentorship
- Discussion/QA forum

Collaboration platform
- Project collaboration
- Discussion forum
- Tech updates

Job/internship platform
- Job portal
- Internship portal
- Freelancing projects

1.3 THE IoT ACADEMY

The IoT academy is EdTech Division of UCT that is running long executive certification programs in collaboration with EICT Academy, IITK, IITR and IITG in multiple domains.

1.4 OBJECTIVES OF THIS INTERNSHIP PROGRAM

The objective for this internship program was to

☛ get practical experience of working in the industry.

☛ to solve real world problems.

☛ to have improved job prospects.

☛ to have Improved understanding of our field and its applications.

☛ to have Personal growth like better communication and problem solving.

1.5 REFERENCE

[1]   docs.python.org/3/library/tk.html

[2]   pyshorteners.readthedocs.io/en/latest/

[3]   www.udemy.com

[4]   https://github.com/likhithaMM/CodeClause_Url_Shortner/blob/main/UrlShorten.py

[5]   https://github.com/Vyom121/Url_shortner/blob/main/Url_Shortner.py

1.6 GLOSSARY

Terms	Acronym
MYSQL	My Structured Query Language.
URL	Uniform Resource Locator
GUI	Graphical user interface

2 PROBLEM STATEMENT

In this URL Shortener project, we have shown the importance of URL shortening at the time of sharing on various platforms. URLs appear to be long, unattractive, on most of the social platforms. They often get broken when shared on social media platforms like e-mail and short URLs can come in handy during these times.

So, to overcome this problem and provide efficient sharing of URLs across the web and social media, a URL shortener is used.

To shorten an Internet Long URL, URL shortening service that will take a long Web URL/address and creates a shorter URL that will not break when we share on different platforms and make them more manageable by using library called Pyshorteners.

For example, a person may have the following complex links, which is not understandable and looks ugly such as:

https://privatebanking.mybank.com/privatebanking/ebankver2/secure/custo mersupport.aspx?messageID=3324341&Sess=asp04&passwordvalidate=true& changepassword=true

The shortened URL might look like this: http://domain.com/url/a23bcd7

3 EXISTING AND PROPOSED SOLUTION

Across the web Various URL shorteners using various technologies like flask, Django were available. There are few websites which offer free link shortener services using these technologies and have few limitations to use.

Hence to provide an individual to create his own program to shorten URLs with no limitation.

Just by doing few stops a user can shorten links in his own system using his own program and can store them for further use.

By linking a Database user can store the shortened URLs which helps him to access them faster without any need to again shorten them.

As shortening URL's is much needed for better user experience and convenience. I used many URL shorteners earlier but after selecting this project I started using my own URL shortener.

The craze of this application motivated to develop my own URL shortener.

Hence, I started working on the problem, referred various resources on how to shorten a URL.

3.1 CODE SUBMISSION (GITHUB LINK):

https://github.com/Sudeeven363/upskillcampus

3.2 REPORT SUBMISSION (GITHUB LINK):

https://github.com/Sudeeven363/upskillcampus/blob/main/Urlshortener_SudeevenNagadesi_USC_UCT.pdf

4 PROPOSED DESIGN / MODEL

On my exploration of the problem, I liked one of the approaches of using Pyshortener library that shortens URLs, using Tkinter GUI for User Interface and MYSQL for database connection

This can be done using importing pyshorteners library. The input field takes input URL from the user and on clicking submit option the user can get shortened URL on screen.

A user interface for this can be added using python tkinter library and any of the SQL databases like MySQL, SQLite can bye used to store the shortened URLs.
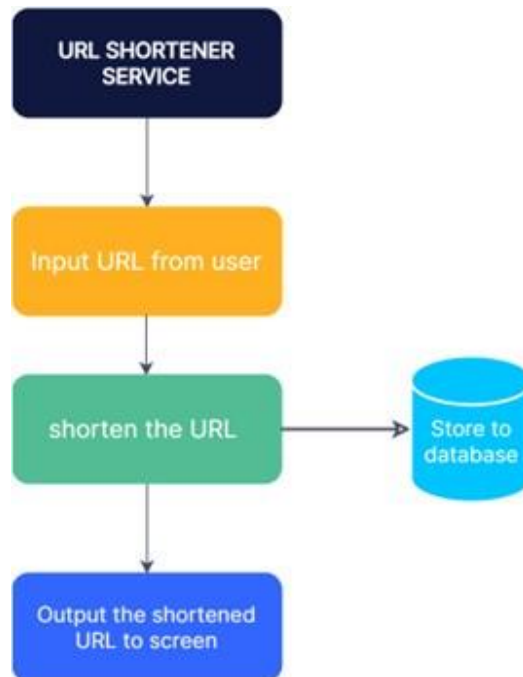
Stepwise Approach-

-User enters an input URL

-shorten function shortens the URL and displays on screen

-user can copy that URL

-the shortened URL is stored to database

4.1 HIGH LEVEL DIAGRAM (IF APPLICABLE)
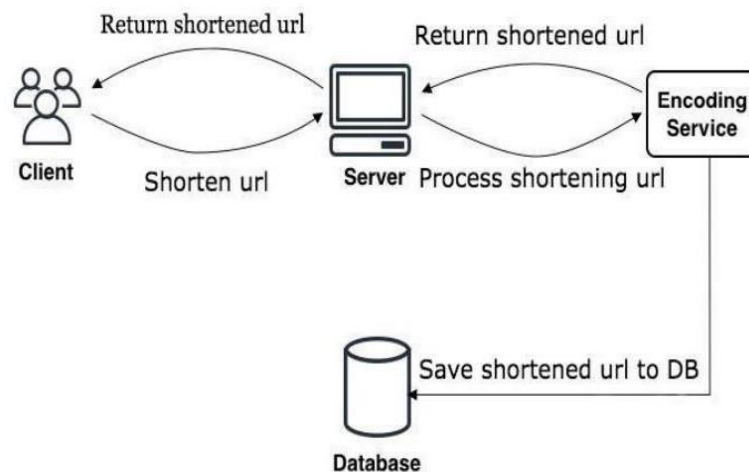
4.2 INTERFACES

FLOW CHART:

USER INTERFACE:

5 PERFORMANCE TEST

The URL Shortener service built using python was tested for its performance including speed, accuracy and capability using lengthy URLs sourced from different websites and applications.

The shortening service successfully shortened every lengthy URLs and stored them into database.

After testing all the above cases the service was analyzed to be fast and accurate.

This can be used by any individual user for fast and accurate results with no bugs.

5.1 TEST PLAN / TEST CASES

1. https://www.youtube.com/watch?v=FKVf1E78Wb8
2. https://www.flipkart.com/boult-audio-y1-zen-enc-mic-40hrs-playtime-fast-charging-pro-calling-ipx5-btv-5-3-bluetooth-headset/p/itme4d24273ffaeb?pid=ACCG9J7FQC4UP3WM&lid=LSTACCG9J7FQC4UP3WMGRGLX1&marketplace=FLIPKART&store=0pm%2Ffcn&srno=b_1_3&otracker=browse&otracker1=hp_rich_navigation_PINNED_neo%2Fmerchandising_NA_NAV_EXPANDABLE_navigationCard_cc_2_L2_view-all&fm=organic&iid=8b640747-ac9b-4a6e-8274-95a6b0de70b3.ACCG9J7FQC4UP3WM.SEARCH&ppt=browse&ppn=browse&ssid=ywtfujoqeo00000001688997116730
3. https://www.myntra.com/shirts/united-colors-of-benetton/united-colors-of-benetton-men-blue-slim-fit-formal-shirt/12957206/buy
4. https://www.shoppersstop.com/arcelia-small-matte-spiral-bands/p-A20SPIRALBANDS_base/colorChange/A20SPIRALBANDS_NoColour?currentPosition=1&searchQueryUrl=https%3A%2F%2Fwww.shoppersstop.com%2Fbeauty-haircare-styling-appliances%2Fc-B105020&totalResultVal=44&searchPageType=category
5. https://www.sistrix.com/ask-sistrix/technical-seo/site-structure/url-length-how-long-can-a-url-be#How-does-Google-deal-with-very-long-URLs

5.2 TEST PROCEDURE

The service was given different URLs as input and was asked to shorten them.

It is also checked whether it is storing the shortened URLs to database or not.

5.3 PERFORMANCE OUTCOME

The URL shortener service produced expected outcomes and performed excellent for all shortening requests without any errors. When a user is registered with a URL shortening service, he can keep track of the stats of the shortened URLs that he has created using this application.

The service provides the user with the information of the short URL input URL. The user visits the application to check the stats of created short URLs.

6 MY LEARNINGS

From this project I have gained knowledge about many technologies, frameworks used in industry level. Throughout the internship period I have been working on python and its libraries for practical use. I have gained much experience on how to create and merge databases with real world applications for effective use and storage of data. Overall, the internship helped me to hone my programming skills and logical ability.

This project has really been faithful and informative. It has made us learn and understand the many trivial concepts of Python Language. Even more important is the rise of mobile smartphones, texting, and mobile Internet – it is far easier to text in a short URL than a long one.

As Twitter, social media, and mobile Internet become more popular, the need to make sharing web content easier will increase. Shorter URLs are becoming more and more integral to that cause.

Overall, this internship has helped me to dive into software development and helped me gain experience on industry level working and project maintenance.

7 FUTURE WORK SCOPE

Sharing long, complex URLS online is not ideal - hence the need for link shorteners. However, while they have many benefits, they are not a totally perfect solution. Unfortunately, it can be difficult to ascertain when and where it is best to use a URL shortener, and when it is smarter to reconsider your strategy.

Due to time constraint, I could not add much features to the application. But in future I would like to add an option to edit and delete unused URLs from the database and an option for the user to directly to copy the shortened URL to his clipboard.

I would like to deploy this application on web for users to shorten URLs without any third-party apps.