Industrial Internship Report on

”Quiz Game”

Prepared by

Rohit Kumar Paturi

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. The project that was undertaken is Quiz Game, an application where the users can take interactive quizzes and track their scores. 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

The 6-week internship program at USC/UCT was designed to provide students with the opportunity to gain hands-on experience in Python.

The project that was undertaken was to develop a Quiz Game that is user-friendly, and it has been successfully developed..

We would like to thank everyone who has helped us during the internship program. We would especially like to thank our mentors, who provided us with guidance and support. We are grateful for the opportunity to have participated in the program and we would recommend it to other students who are interested in Python.

To our juniors and peers, we would like to encourage you to take advantage of internship opportunities. Internships are a great way to gain hands-on experience, network withprofessionals, and learn new skills. I am confident that you will find internships to be a valuable experience.

2 Introduction

2.1 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/LoRaWAN), 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 at 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

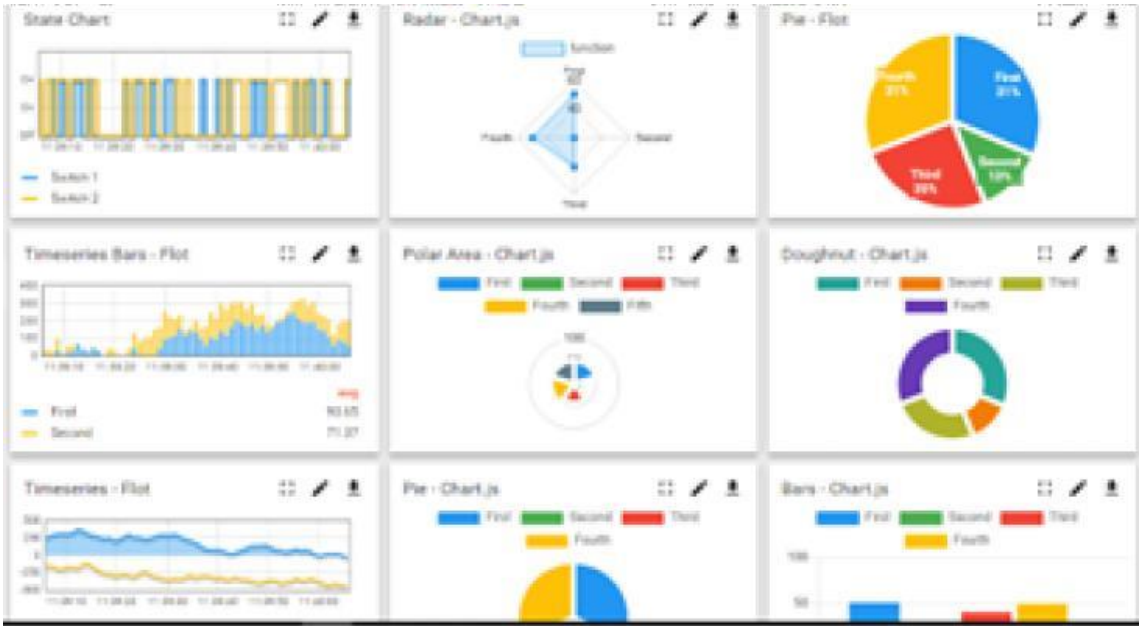
• Build Your own dashboard

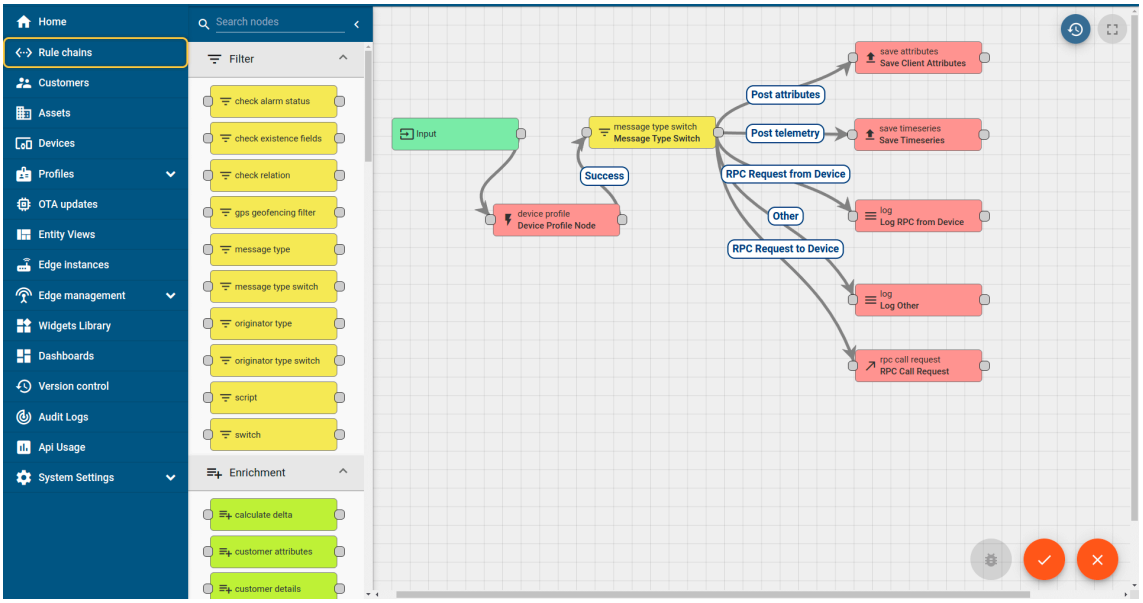
• Analytics and Reporting

• Alert and Notification

• Integration with third party application (Power BI, SAP, ERP)

• Rule Engine


State Chart
Radar - Chart.js
Pie - Plot
Timeseries Bars - Plot
Polar Area - Chart.js
Doughnut - Chart.js
Timeseries - Plot
Pie - Chart.js
Bars - Chart.js


Home
Rule chains
Customers
Assets
Devices
Profiles
OTA updates
Entity Views
Edge instances
Edge management
Widgets Library
Dashboards
Version control
Audit Logs
Api Usage
System Settings
Search nodes
Filter
check alarm status
check existence fields
check relation
gps geofencing filter
message type
message type switch
originator type
originator type switch
script
switch
Enrichment
calculate delta
customer attributes
customer details
Input
message type switch
Message Type Switch
Success
device profile
Device Profile Node
Post attributes
Post telemetry
RPC Request from Device
Other
RPC Request to Device
save attributes
Save Client Attributes
save timeseries
Save Timeseries
log
Log RPC from Device
log
Log Other
rpc call request
RPC Call Request

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 also 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.

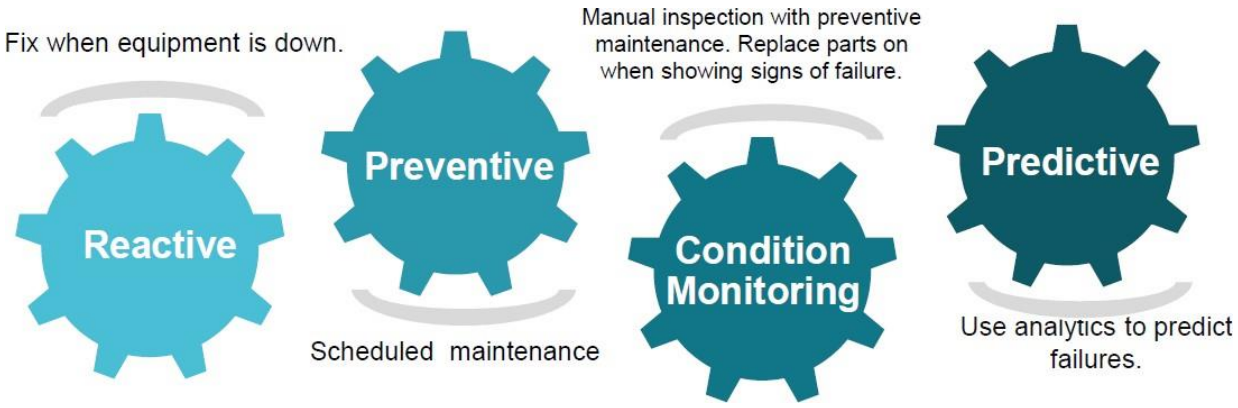
Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i

iii. LoRaWAN based Solution

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

iv. Predictive Maintenance

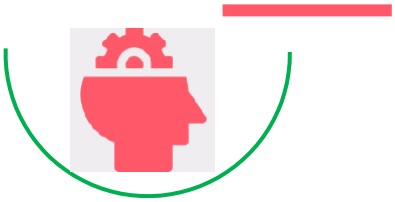
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



2.2 About upskill Campus (USC)

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

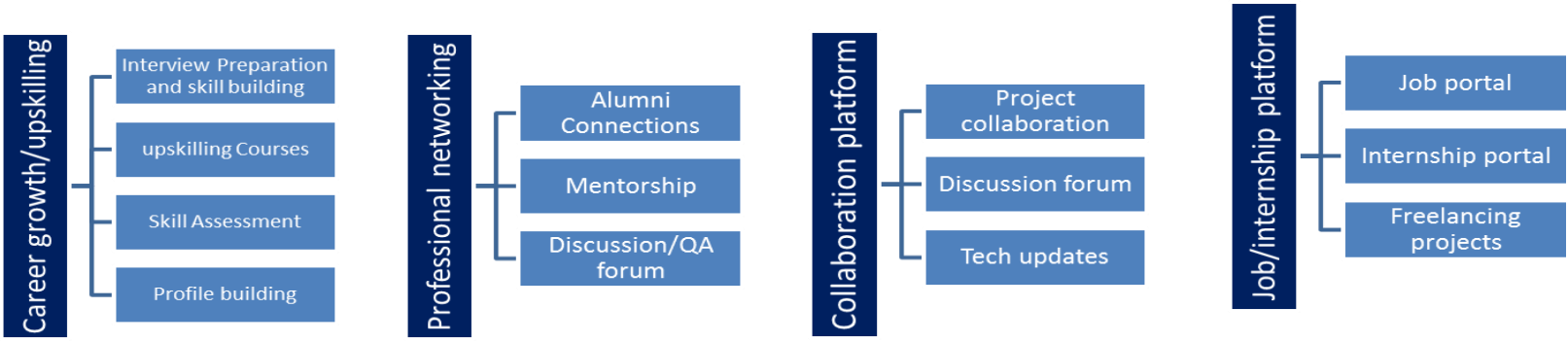
USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.



Seeing need of upskilling in self paced manner along-with additional support services e.g. Internship, projects, interaction with Industry experts, Career growth Services

upSkill Campus aiming to upskill 1 million learners in next 5 year

https://www.upskillcampus.com/



2.3 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.

2.4 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.

2.5 Reference

[1] https://www.geeksforgeeks.org/python-gui-tkinter/

[2] https://youtu.be/zehwgTB0vV8

3 Problem Statement

This project aims to develop a quiz game in Python that quizzes users on various topics. The scope of this project involves designing a user interface to display questions and collect user answers, implementing a database system to store quiz data, and developing a scoring algorithmto track the user's progress and calculate their final score. Finally, a leaderboard will be displayed according to the scores of each user.

The game will read questions and answers from a database, present them to the user, and keep track of their score. The game will also have a user interface that is easy to use and navigate.

The Python quiz game will have the following benefits:

- It will provide a fun and engaging way for users to test their knowledge.
- It will help users to learn new information and improve their understanding of various topics.
- It will be a valuable tool for teachers and educators to use in the classroom.

The following are the specific requirements for the Python quiz game:

- The game must have a user-friendly interface.
- The game must be able to keep track of the user's score.

4 Existing and Proposed solution

There are several existing quiz games available, both online and offline. While these existing quiz games are all great options, they all have some limitations. For example, some can have repetitive questions, some may not have leaderboards, etc.

The proposed solution for the Python quiz game project is to create a quiz game that addresses the limitations of existing solutions. The game will be designed to be:

- User-friendly: The game will have a user interface that is easy to use and navigate.
- Non-repetitive: In a single game, there will be no repeating questions.
- Competitive: We can build a leaderboard to make the quiz game more competitive for the users.

4.1 Code submission (Github link)

https://github.com/ShutterBugSR/Upskill-project

4.2 Report submission (Github link) : first make placeholder, copy the link.

https://github.com/ShutterBugSR/Upskill-project/commit/f8bcf1cf1fd66e01ae96f122c6ec6f23da575321#commitcomment-121413326

5 Proposed Design/ Model

The project will start with the design of a user interface to display questions and collect user answers. The user interface will be easy to use and understand. Once the user interface is designed, the next step will be to implement a database system to store quiz data. The final stage of the project will involve developing a scoring algorithm to track the user's progress andcalculate their final score. The scoring algorithm should be fair and accurate.

The outcome of the project will be a quiz game that can be used to quiz users on various topics. The quiz game should be fun and engaging, and it should help users to learn new things. There will also be a leaderboard to compare the performances of various users.

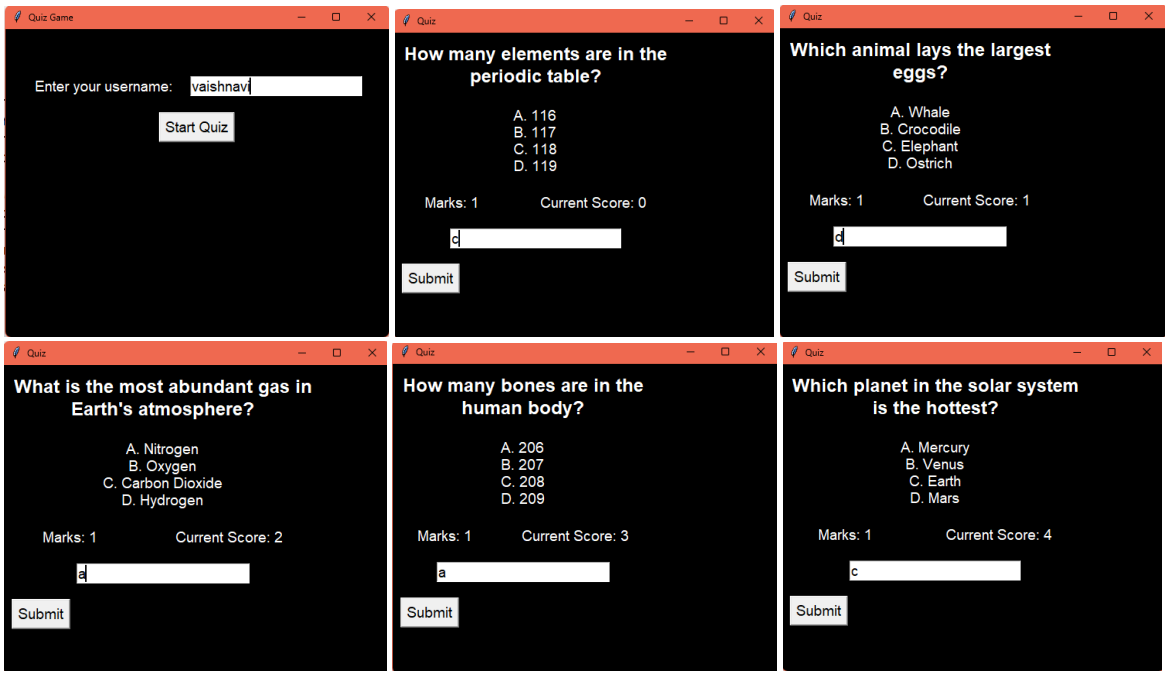
6 Performance Test

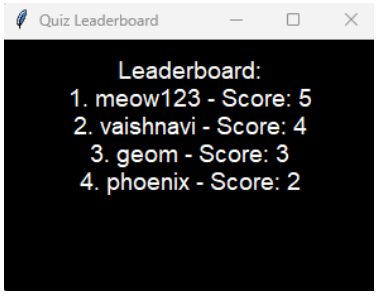
The following recommendations can be made to improve the performance of the quiz game:

- Use a more efficient database or file system: The current database or file system is not very efficient. This can be improved by using a more efficient database or file system.
- Optimize the scoring algorithm: The scoring algorithm can be optimized to improve the accuracy of the game.
- Test the game on a wider variety of devices: The game should be tested on a wider variety of devices to ensure that it is compatible with all devices.

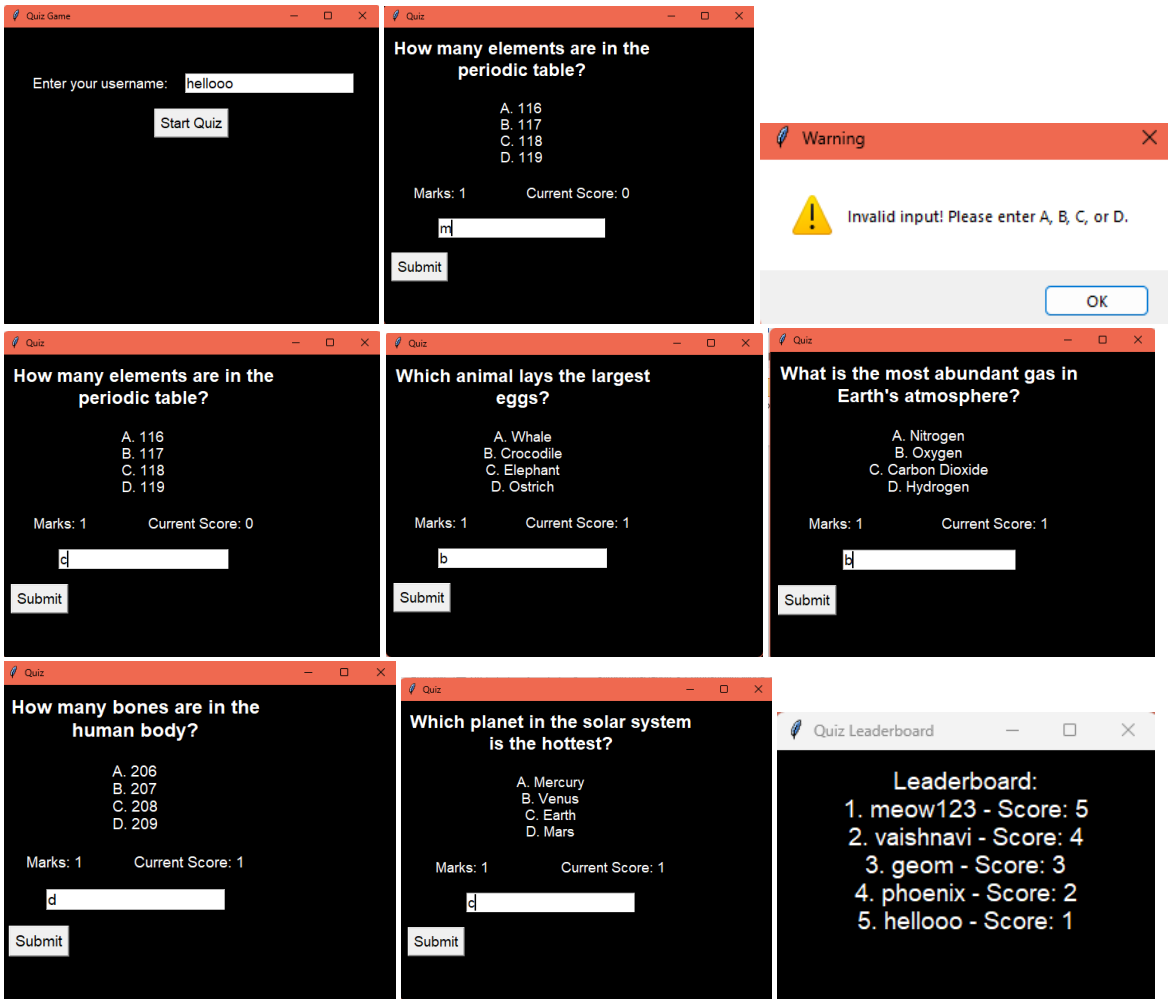
6.1 Test Plan/ Test Cases

1. Normal execution

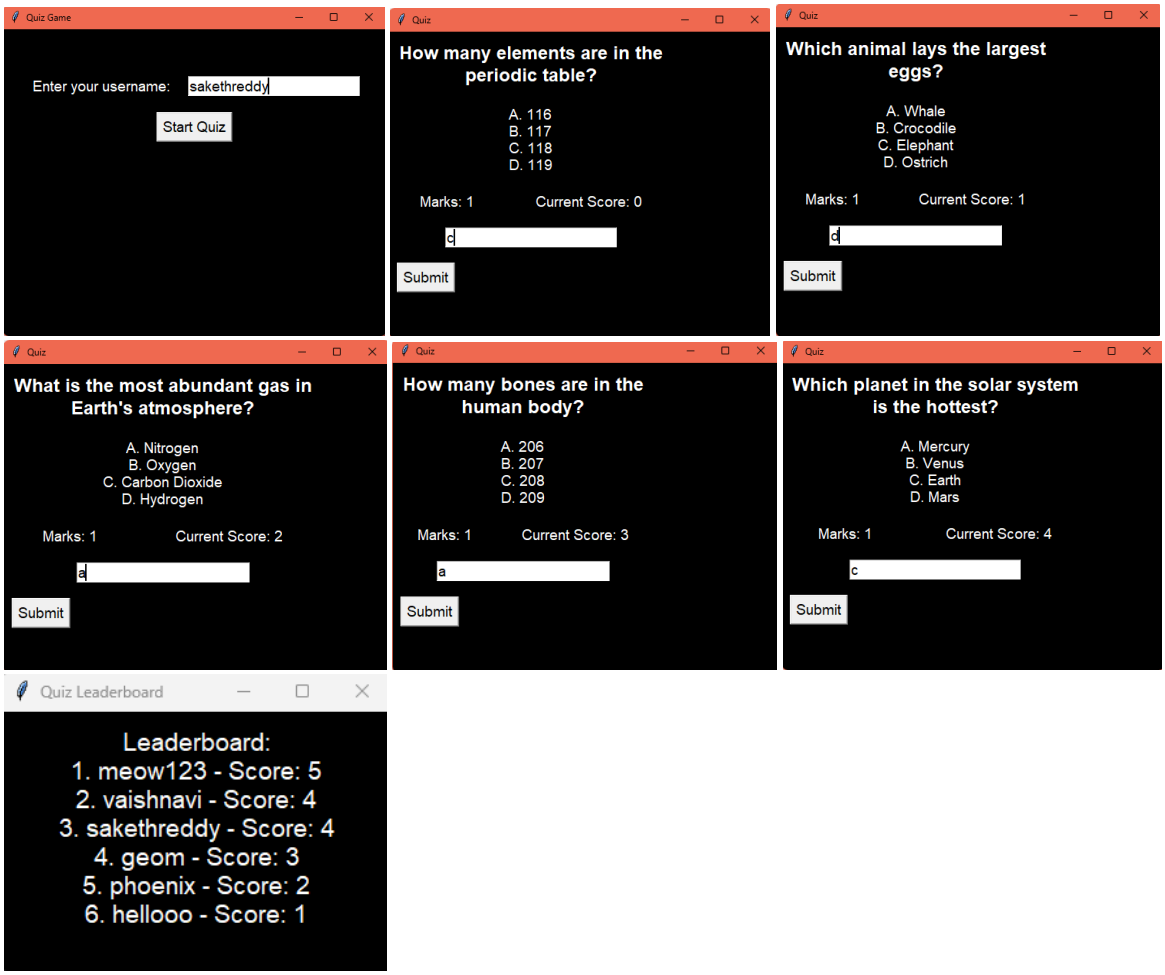




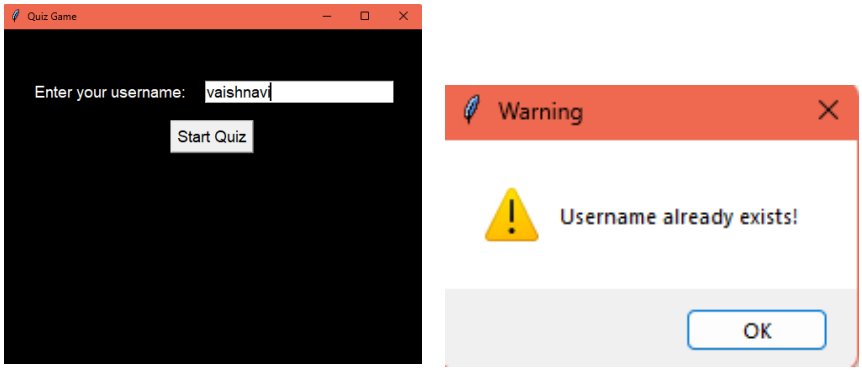
2. If the user enters wrong option



3. If two users get the same score (The one who did the quiz first gets the higher rank)



4. If the username entered has already been used.



6.2 Test Procedure

Make sure that the MySQL database is created for this project:

- Questions: This table contains the questions, their options, and the answer. It also includes the score for each right answer.
- Quiz_results: This table contains the username and the score for each user. This table is used for displaying the leaderboard.

Once this is done, run the code on an environment that supports Python Code and check whether the questions are displayed correctly and if the scores are calculated accurately.

6.3 Performance Outcome

The performance outcome of the project has met with the following criteria:

- The quiz game loads and presents questions to the user quickly.
- The quiz game can handle a large number of questions without significant slowdowns.
- The scoring algorithm calculates the user's score accurately and efficiently.
- The user interface is responsive and provide a smooth experience for the user.
- The database system used to store quiz data can handle a large amount of data efficiently.

7 My learnings

We learned a lot from the quiz game project like how to design and implement a user interface in Python, implement a database, develop a scoring algorithm in Python, and test and debug Python code. We also learned a lot about the process of software development, such as breaking down a problem into smaller, more manageable tasks, working with a team to collaborate on a project, and managing my time and resources effectively.

We believe that these learnings will help us in my career growth. We are now more confident in our abilities to design and implement user interfaces, store and retrieve data, develop scoring algorithms, and test and debug Python code. We are also more familiar with the Python programming language, which is a valuable skill in the tech industry.

Overall, we are very proud of the quiz game project that we completed. We learned a lot, and we are confident that these learnings will help us in our career growth.

8 Future work scope

Here are some ideas for future work on the quiz game project:

- Add more questions and answers: The current quiz game only has a limited number of questions and answers. Adding more questions and answers would make the game more challenging and engaging.
- Add different types of questions: The current quiz game only has multiple-choice questions. Adding different types of questions, such as true/false questions and fill-in-the-blank questions, would make the game more versatile.
- The game must be able to generate reports on the user's performance.
- The user interface can be made more attractive.
- Display whether the option given by the user is correct or wrong before moving to the next question.