**Challenge**

LUNAR SURFACE OPERATIONS: REAL-TIME COLLABORATION

**Project Title\*:**

Space-Logger

**High-Level Project Summary:**

The main objective of our project is to develop an application which creates communication channel to record all the console log data of astronauts that will be recorded in the server in the ground station. This log information is useful for the scientific community. During space missions, the EVAs crewmembers use to send the details of the exploration or interesting facts or issues such as photographs, audibly describing what they see and textual messages etc. This real-time console log information is vital for review by the experts and helpful for post mission investigation or scientific research. Real time Integrating log information by multiple crew member in a space mission is challenging task. Space-Logger is Mobile cum Web Application which assist the crew member can individually record their exploration on the planet space. Simultaneously many members can save their log information which include text, image, video (10 kb size).

Secured web application is running on webserver in the space station which allows only registered authorities to access. The application initially lists all the current projects names. The authorized users can access the those listed projects. Each project will display the recorded console log by the respective crew members. The authorities in the base station can be able view real time logs of different crew members. The log data are categorized into three segments such as text, videos, and photos. The mobile application on the other side helps the crew members to send their log data to server. Multiple users can send their log data on different projects simultaneously. The owner of the log information can be able to delete the log information during his or her mission on space. Once the mission is completed, the log information is kept as authentic recorded log file about the mission.

Application features

* Every crew member must register before using the application.
* Registration may also include the user data validation.
* Registration includes necessary information like code of the crew, name, email etc.
* Only authentic users are allowed to access the system.
* Multiple simultaneous users creating their own console logs.
* Logs can be deleted by the crew member who own the log only.
* Crew members can simultaneously view the log of other crew members in the same mission.
* Crew members and Other authentic users can filter the log to view (on demand).
* Provide facility to search topic-based entries, which are listed in time and date wise
* Console log metadata that includes (at a minimum) a timestamp for every entry and a text entry (an entry could also include images)
* The ability to input different type of data include text, image file and video file.

Project addresses satisfies the following requirements of the challenge:

1. Requirement of the challenge is to create an application which create the channel to record the log data of the crew members on the space and ground space station to lively record the log information that should help for further scientific research. Our Space-Log application is client server application, where the mobile application is acting as client that are used by the crew members of different project and send their log data to the server. So that authentic user can access those data fir further research and review.
2. The application integrates console log information of many users.
3. The application allows to delete the console log information by the user who own that information. Others can bale view only.
4. The application never allows unapproved people to access because every user of the application must register, and the registration will be validated by their mail account.
5. The application allows the different type of log data such as text, image and video. The server-side application categorizes the data and displayed in different panels.
6. The user of the application can be able to view the interest topic log information by using search option.

**Link to Project "Demo":**

* PPT Link
* Video Link

**Link to Final Project**

Application Link (github)

**Detailed Project Description\***

Project includes client and server modules. Mobile Application is client. Web Application as a server.

Client Side:

* IDE: Android Studio
* Programming Language: Java
* Backend Database: MySQL

Server Side:

* Web Server: Tomcat
* Server Side Script: PHP
* Backend Database: MySQL

The project includes several modules Such as

Registration Module:

This module is used to register new user.  Users must provide the username, password, email address, employee code and mobile number during the registration time.

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Login Module:

This module helps to login to the system for the registered user.  A registered user can login into the app using their login credentials. An error message will be shown for the incorrect credentials. Correct credentials take the user to Project List module.

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Project List Module:

This module displays all the available Projects. The project name and the associated logos are displayed. User can select the project by clicking on the project name.

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 Console Log:

The Console log will display logs for the selected project. An astronaut from space can type messages, send photos or videos. The user from ground station can be able to view the logs. Every log messages are associated with crew id, date and time. This will be an authentic record of the mission

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**Hackathon Journey**

Team members

* Ms.AMNA SALIM RASHID AL KAABI (Team Head)
* Ms.RAHMA FAHAD MOHAMMEDAL-MAMARI
* Ms.SHEIKHA HASSAN KHAMIS MOHAMMED ALZAABI
* Ms.KHALOUD HAMED RASHID ALMAAMARI
* Ms.RAHAF MOHAMMED ALIAL-KHAZIMI

We are students from University of Technology and Applied Science-Shinas, Sultanate of Oman. I thank especially college management, head of department, Head of IT Section, and the faculty members. They supported and encouraged us to take part of the challenge. Really it is a new experience for us to know the real problems and challenges around us. All challenges are unique and requires more domain knowledge than technical skills. Due to very short time (5 days) to bring out the solution of a challenge is really difficult task but yet it a good experience for us to work as team. We choose the challenge “LUNAR SURFACE OPERATIONS: REAL-TIME COLLABORATION” because of the nature of the work. Other problems require data collection from the given resources. Even though we like to code for data analysis, we prefer this challenge due to the time constrain. This challenge requires technical skill and we adopt waterfall model to design and develop the application.

**Space Agency Data:**

The data given in the challenges are the sample of console log information of different space missions. This sample data log helps us to design database and interface design of our application. The following are the sample data references used in this project

<https://history.nasa.gov/afj/ap13fj/08day3-problem.html>

<https://history.nasa.gov/afj/ap11fj/01launch.html>

<https://history.nasa.gov/afj/ap13fj/pics/accident-log.png>

**References**

<https://developer.android.com/training/basics/firstapp>

<https://www.w3schools.com/php/DEFAULT.asp>

<https://history.nasa.gov/afj/ap13fj/08day3-problem.html>

<https://history.nasa.gov/afj/ap11fj/01launch.html>

<https://history.nasa.gov/afj/ap13fj/pics/accident-log.png>

**Tags:**

#Application #Console Log #Communication Application #Real-Time Communication Application