# CFG Software Homework 2 - Group 6 (Thales Gals)

## Group members:


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## What are you building?

We are building an educational, interactive space-themed game using Python/PyGame. The game is targeted at learners aged 7-12 years and the aim is to navigate a high-altitude, long-endurance stratospheric airship (Thales' Stratobus) through virtual cosmos while learning about and completing educational tasks linked to space, weather and near-Earth objects. The game incorporates real-time API data from sources such as NASA's Open API Portal, providing players with realistic and engaging space-related tasks, as well as a database to store player progress, scores and questions. The front-end of the application will use PyGame to render different environments the player can interact with, as well as engaging interfaces for the various tasks and challenges in the game.

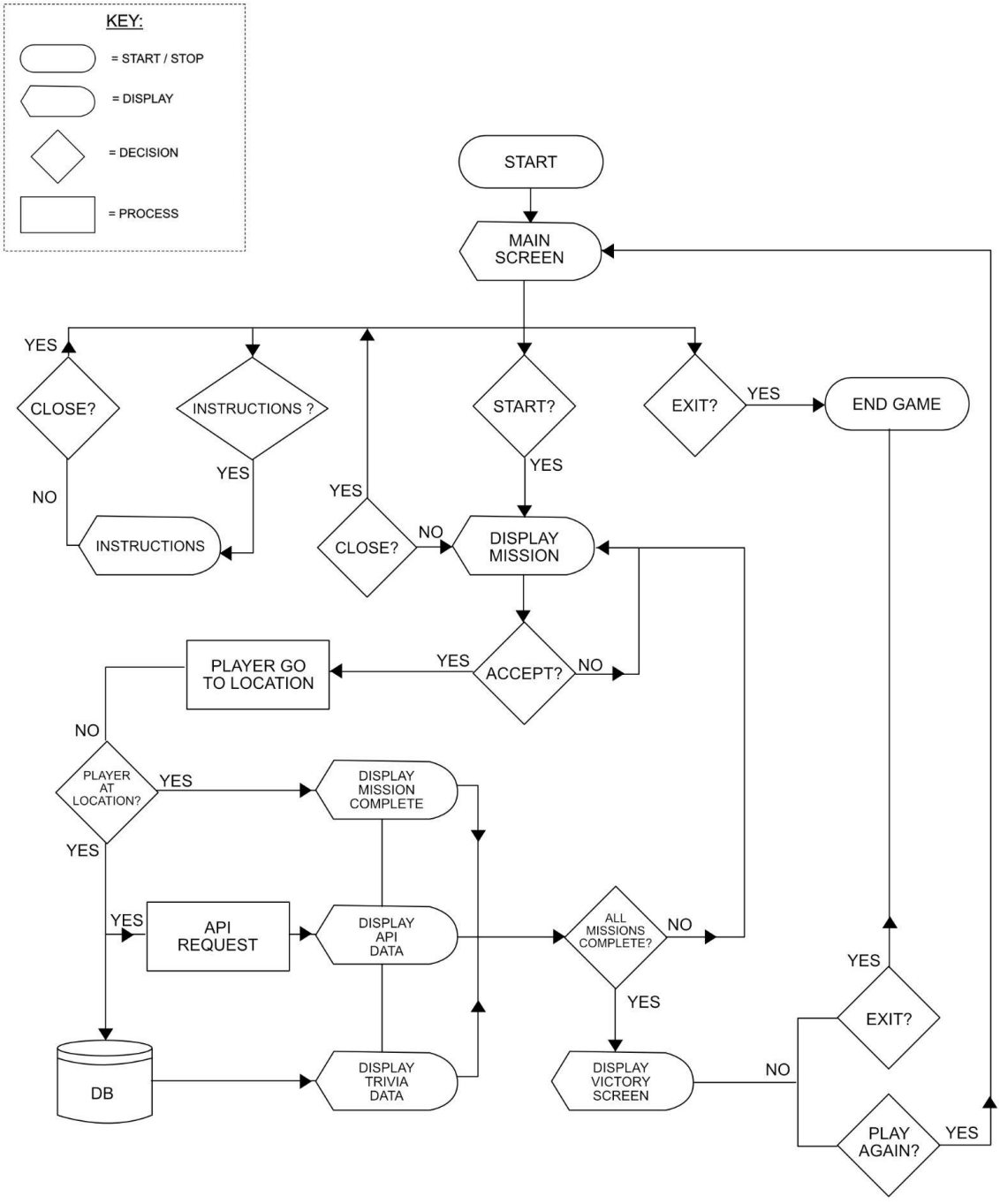
## What does it do or what kind of problem does it solve?

The *Stratobus Mission* aims to educate players aged 7-12 years about space concepts in an engaging, fun way as well as providing a more contextual understanding of software engineering. As all group members are sponsored by Thales, we wanted to create something linked to Thales' areas of operation while also incorporating aspects such as education & community outreach - both of which were big pull-factors towards Thales for all of us. We imagined ourselves in a real-life scenario where we had been tasked with building an application to help children understand the work Thales does and promote their initiatives while inspiring young learners. Our project solves the problem of making education engaging and fun, even in complex areas such as aerospace, while exploring a virtual space environment that will be visually stimulating and with the rewarding element of completing tasks. We also know Thales has an ethos of fostering volunteering opportunities and giving back, and wanted to build something that would contribute to their corporate social responsibility initiatives.

## What are the key features of your system?

- Third party APIs & custom SQL database with connector including:
    - NASA OpenAPI
    - Sentinel Hub
- Event listeners
- Database integration
- Graphics and audio
- Python programs to create tasks for the user to complete

## Provide a sample architecture diagram of your system



## Describe the team approach to the project work:

Our team is built on collaboration, mutual support and a collective determination to showcase our capabilities to our sponsor company, Thales. By understanding our strengths and areas for growth, we have been able to utilise existing knowledge and learn from each other by teaming up those who excel in one area with those looking to improve, in an effort to emulate pair programming that we expect to encounter in our day-to-day as software developers.

Each team member has clear tasks managed in a Trello board, and we use short daily stand-ups and meet regularly on longer calls to discuss ideas and solve challenges together following agile methodologies. Code will be managed via Github, with a development branch created and peer reviewed before merging. We use Discord to stay connected and Mural to collaborate and share ideas. We're planning to test through a combination of debugging, the Python unittest module and static analysis by other team members to try to capture any bugs before merging, as well as having external users carry out user acceptance testing on the finished product. Our approach not only ensures a great game but also creates a strong teamwork environment where we share knowledge and push one another to succeed. Effective communication and skill-building are our guiding principles, driving the success of the *Stratobus Mission*.