The Aviators Requirements Draft

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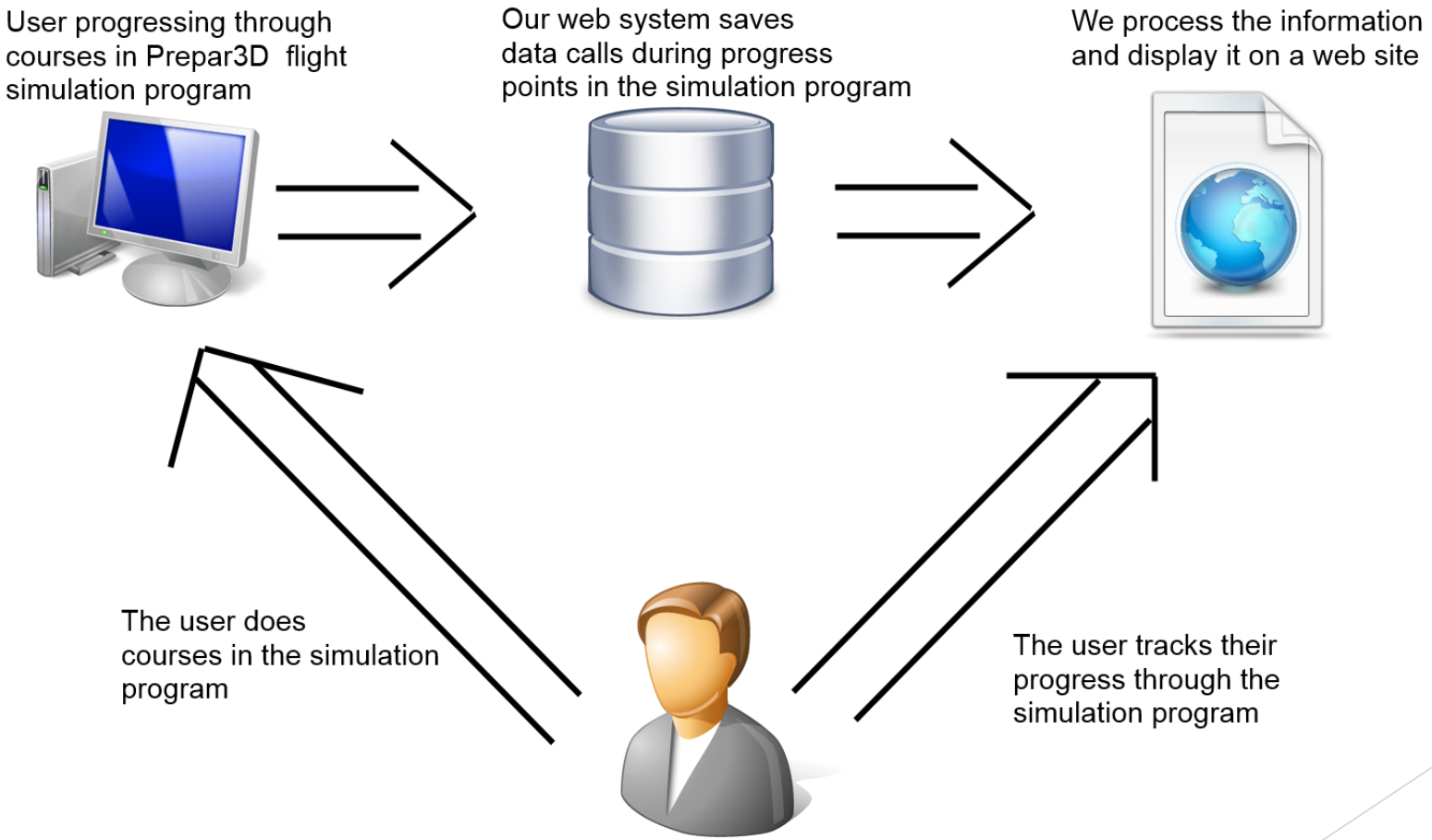
Problem & Solution Statement

- **Problem:** Our sponsor is True Course Simulations, True Course Simulations is facing the problem of presenting the statistics of users advancing through the lessons in the course. Without a central system for the users of the training program, tracking progress becomes difficult

- **Solution:** We are creating a web application to link the lessons, achievements, and training program with a Tin Can API. By using our software system, users will be able to log-in and view their progress in the modules needed for safe aircraft piloting. The progress points can be sent at any time, so we will have a server running constantly to process the requests. Once they are processed, the users will be able to view the progress on a web site.

Graphical Overview of the communication between the web application, Clients and 3rd Party software.



System Data

- Data our system uses
  - comes from the Tin Can API calls from the Prepar3D software
  - will be put into our database
- Data system generates
  - Course progress modules based on database information

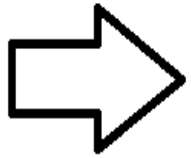
Computational Processes

- Main computation process
  - Web application will have an active port waiting for its Tin Can sent from a 3rd party source.

Key functionality of our code

Tin Can Object Call

```
{
    "actor": {
        "mbox": "mailto:test@email.com",
        "name": "Test Name",
        "objectType": "Agent"
    },
    "verb": {
        "id": "http://testwebsite.com/expapi/verbs/completed",
        "display": {
            "en-US": "completed"
        }
    },
    "object": {
        "id": "http://www.testwebsite.com/tincan/activities/ItvdXArM",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Acivity Test Name"
            },
            "description": {
                "en-US": "Activity Test Description"
            }
        }
    }
}
```



SQL Insert Statement

```
INSERT INTO FlightSystem.Actor (
    PKEY
    ,Email
    ,NAME
    ,ObjectType
    )
VALUES (
    'mailto:test@email.com'
    ,'Test Name'
    ,'Agent'
    )

INSERT INTO FlightSystem.Verb (
    FKEY
    ,ID
    ,Locale
    ,Type
    )
VALUES (
    @Actor
    ,'http://testwebsite.com/exapi/verbs/completed'
    ,'en-us'
    ,'completed'
    )

INSERT INTO FlightSystem.Objects (
    FKEY
    ,ID
    ,ObjType
    ,Locale
    ,Activity
    ,Activity_Descr
    )
VALUES (
    @Actor
    ,'http://www.testwebsite.com/tincan/activites/ItvdXArM'
    ,'en-US'
    ,'Activity Test Name'
    ,'Activity Test Description'
    )
```

Environmental Requirements

- Modern web server
  - Hardware
    - Considerations for growth
      - Hard Drives
      - Memory
      - Connection
  - Software
    - Common web software (Apache, PHP, MySQL… etc)
    - Tin Can API Required ([JSON] > PHP > Apache > MySQL…)

Functional Requirements

- User Management System (secure way to view course progress)
  - User levels
    - System Administrators
    - Group Administrators
    - Students
  - Dashboards
    - Based on user level
    - Based on client for “look”
  - Course Progress
    - Tin Can API
    - Link web account w/ sponsor software

Non Functional Requirements

- Performance
  - Normal web site loading times
  - Instantaneous updates of score progress
- Reliability
  - Web server will be on 24/7
    - Process course calls from Prepar3d
    - Process and direct web pages
  - Backups
    - Backups every X interval (maybe once a day or once a week)
    - Database and Web Source Code

Non Functional Requirements (Cont.)

- Verifiability
  - Web site loading times
    - Can be tested using developer tools on modern web browsers
  - Updates of course progress
    - Users will be browsing the site when they are not on the simulation program going through a course, so the page load will get current information
  - Web server uptime
    - Can be tested programmatically at certain times of day for peak use and performances
  - Backups
    - Can test uploading backup of source code to web server
    - Can test restoring database information by viewing table data

Potential Risks

- Server Down: The data sent from the third party website will be lost. There will be no way to re collect the data that have been lost.
- Group Administrator might not be able to login or reconnect with the group
- Students: will not able to access there information because the group admin haven’t added them to the circle to share there data.
- The system administrator lose access to the system administrator panel to add group administrators or Group Administrator