

TECHNICAL PRESENTATION: GCIEL

AUTHORS: IAN BROWN, KELTON WATTS, JOSH SUTTON, ETHAN YUEN, HAOBO CHEN

PROJECT OVERVIEW

PURPOSE

- GOAL:
 - TO INCORPORATE VR TECHNOLOGY INTO THE ACADEMIC EXPERIENCE
- GCIEL ASSESSMENT STRATEGY:
 - TO USE THE GOAL TO CREATE A BETTER LEARNING EXPERIENCE FOR STUDENTS
- THE APP:
 - DISPLAY HOW STUDENTS PERFORMED IN, AND INTERACTED WITH THE EXPERIENCE
 - FIND AREAS OF INTEREST

USERS

- INTENDED USERS:
 - STUDENTS, EDUCATORS, RESEARCHERS, AND NEXT DEVELOPERS
 - TO LEARN ABOUT THE VIKING LONGSHIP BUILDING PROCESS AND THE INFORMATION FOR EACH SHIP BUILDING PIECE
- FUTURE VISION:
 - PROVIDE A PATH FORWARD FOR THE NEXT DEVELOPERS
- APP:
 - PLAYER INFORMATION TO RESEARCH HUMAN INTERACTION WITH THIS SPECIFIC VR EXPERIENCE
 - TO FIND HELPFUL CORRELATIONS TO IMPROVE VR LEARNING RETENTION

TECHNOLOGY USE

- THE VIKING LONGSHIP PROJECT IS A VR EXPERIENCE RUN THROUGH UNITY
- THE DATA REPRESENTS THE X, Y, AND Z HEAD POSITION OF THE PLAYER
 - WHICH PIECE IS CURRENTLY BEING VIEWED
 - WHAT PIECE IS CURRENTLY DISPLAYED
- R SHINY APP
 - PRESENTS USEFUL VISUALIZATIONS TO UNDERSTAND THE EXTRACTED DATA

REQUIREMENTS

- ARCS BASED QUESTIONNAIRE/SURVEY THAT ACCURATELY DOCUMENTS USER EXPERIENCE
- UPLOAD DATASETS OBTAINED FROM PLAYER USE INTO THE APP
- VISUALIZATIONS THAT EASILY AND CLEARLY PORTRAY THE INFORMATION FROM THE DATASET
- DATASETS NEED TO BE DOWNLOADABLE IN READABLE FORMAT FOR FUTURE USE AND ANALYSIS

USER STORIES

USER STORY 1: ARCS MODEL-BASED EVALUATION

AS AN EDUCATIONAL RESEARCHER, I WANT TO USE AN ARCS MODEL-BASED QUESTIONNAIRE TO EVALUATE THE EFFECTIVENESS OF THE VR GAME IN TERMS OF ATTENTION, RELEVANCE, CONFIDENCE, AND SATISFACTION.

- **ACCEPTANCE CRITERIA:**
 - QUESTIONNAIRE ACCESSIBILITY
 - COMPREHENSIVE ARCS MODEL COVERAGE
 - EASE OF USE AND CLARITY
 - DATA PRIVACY AND SECURITY

USER STORY 2: DATA UPLOADING

AS A USER, I WANT TO UPLOAD MY DATASET IN CSV FORMAT SO THAT I CAN ANALYZE MY DATA USING THE APP'S FEATURES. I WANT TO VISUALIZE MY DATA WITHOUT PRIOR KNOWLEDGE OF HOW TO VISUALIZE DATA SO I CAN FOCUS ON THE GAME AND MY DATA GATHERED FROM THE GAME EXPERIENCE.

- **ACCEPTANCE CRITERIA:**

- UPLOADING .CSV FILES
- VALIDATE FORMAT AND STRUCTURE
- PROVIDE FEEDBACK IF THE UPLOADED FILE DOES NOT MATCH THE CORRECT FORMAT
- VISUALIZATIONS PROVIDE INFORMATION ON HOW TO UNDERSTAND THE GOINGS ON

USER STORY 3: DATA ANALYSIS

AS A DATA ANALYST, I WANT TO USE VARIOUS ANALYTICAL FEATURES TO ANALYZE MY DATASET TO EXTRACT MEANINGFUL INSIGHTS ABOUT THE GAME.

- **ACCEPTANCE CRITERIA:**

- THE APP SHOULD COMPILE ALL VISUALIZATIONS
- EACH FEATURE MUST ACCURATELY PROCESS AND VISUALIZE THE DATA
- THE APP SHOULD HANDLE LARGE DATASETS EFFICIENTLY

USER STORY 4: DATA EXPORT

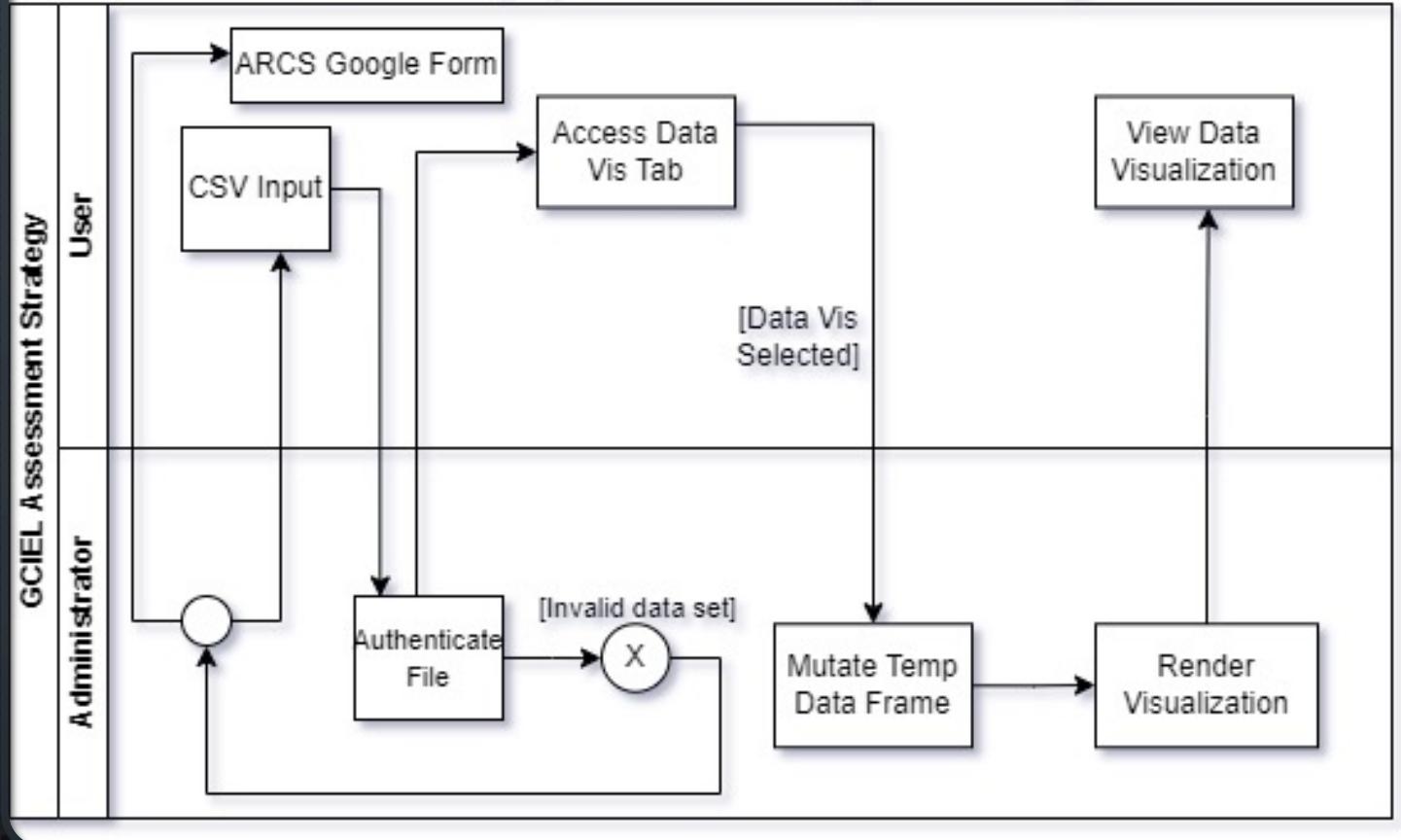
AS A RESEARCHER, I WANT TO DOWNLOAD THE AVAILABLE DATA DESCRIPTIONS AND DATASETS SO THAT I CAN USE THEM FOR FURTHER ANALYSIS OR REPORTING.

- **ACCEPTANCE CRITERIA:**

- THE APP SHOULD PROVIDE OPTIONS TO DOWNLOAD DATA DESCRIPTIONS AND DATASETS IN .CSV FORMAT
- DOWNLOADED FILES SHOULD MAINTAIN DATA INTEGRITY AND FORMAT

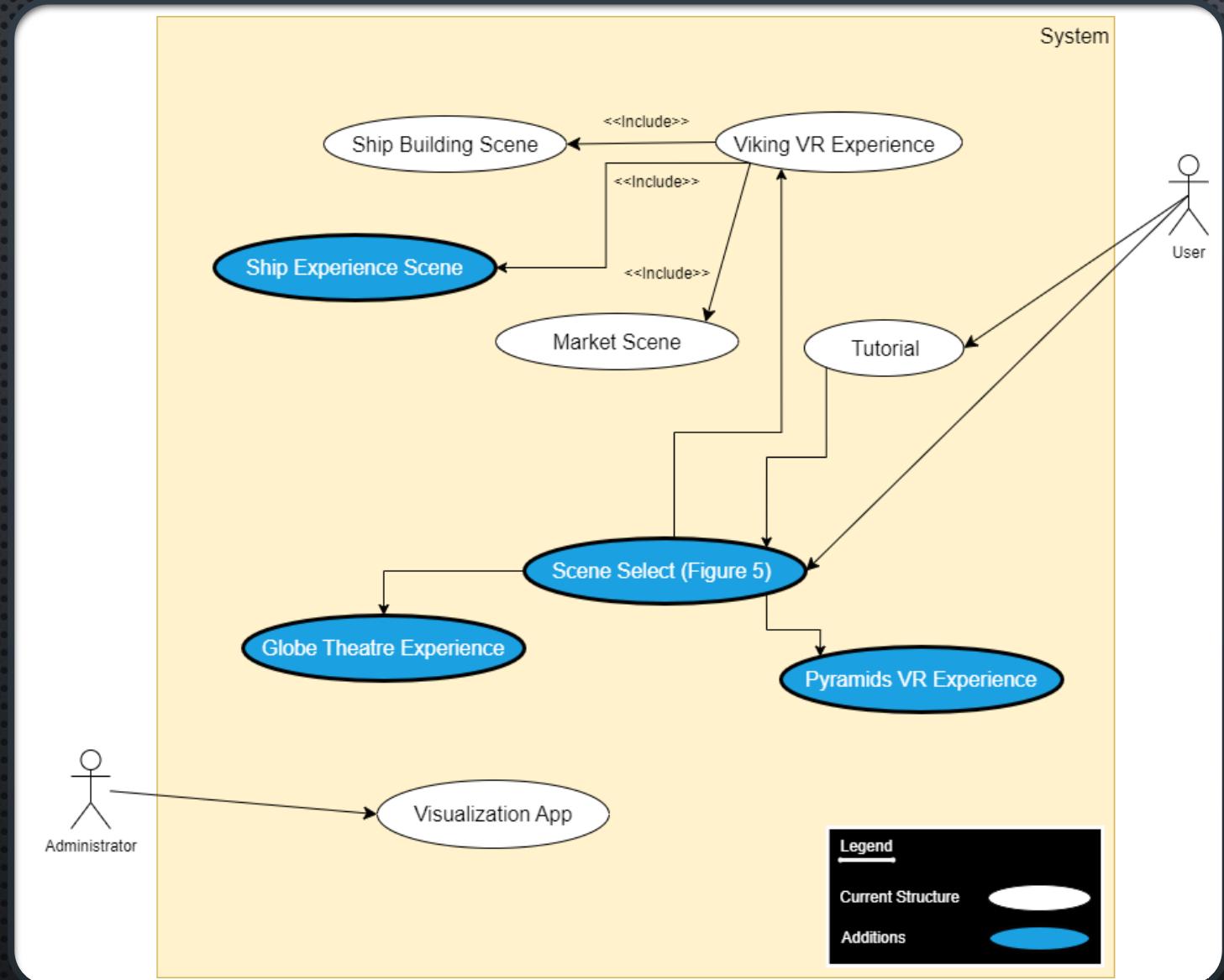
PRODUCT DESIGN

GCIEL App Activity Diagram

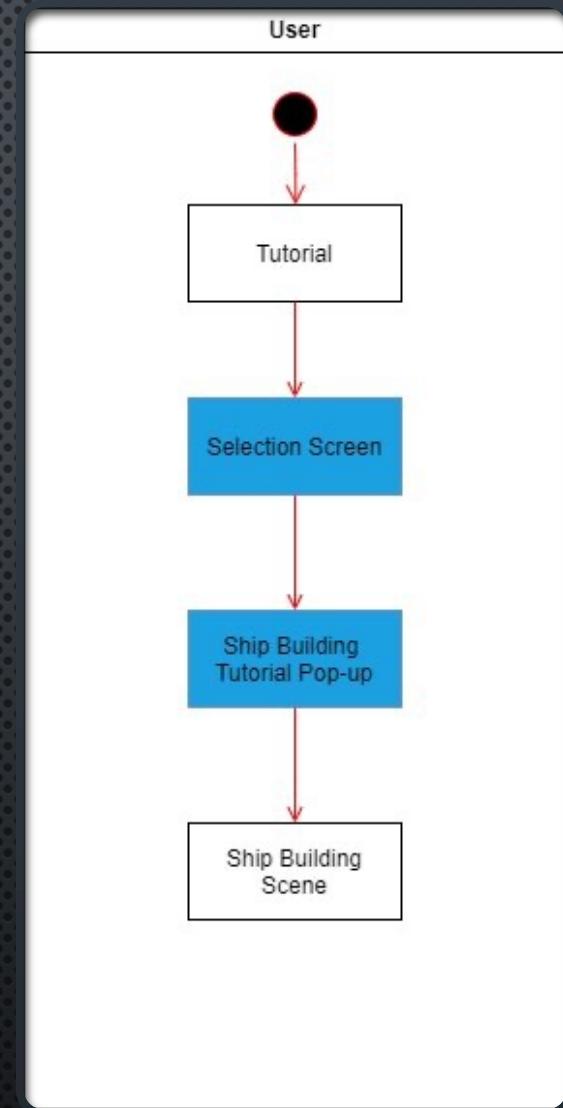


UML APP
ACTIVITY
DIAGRAM

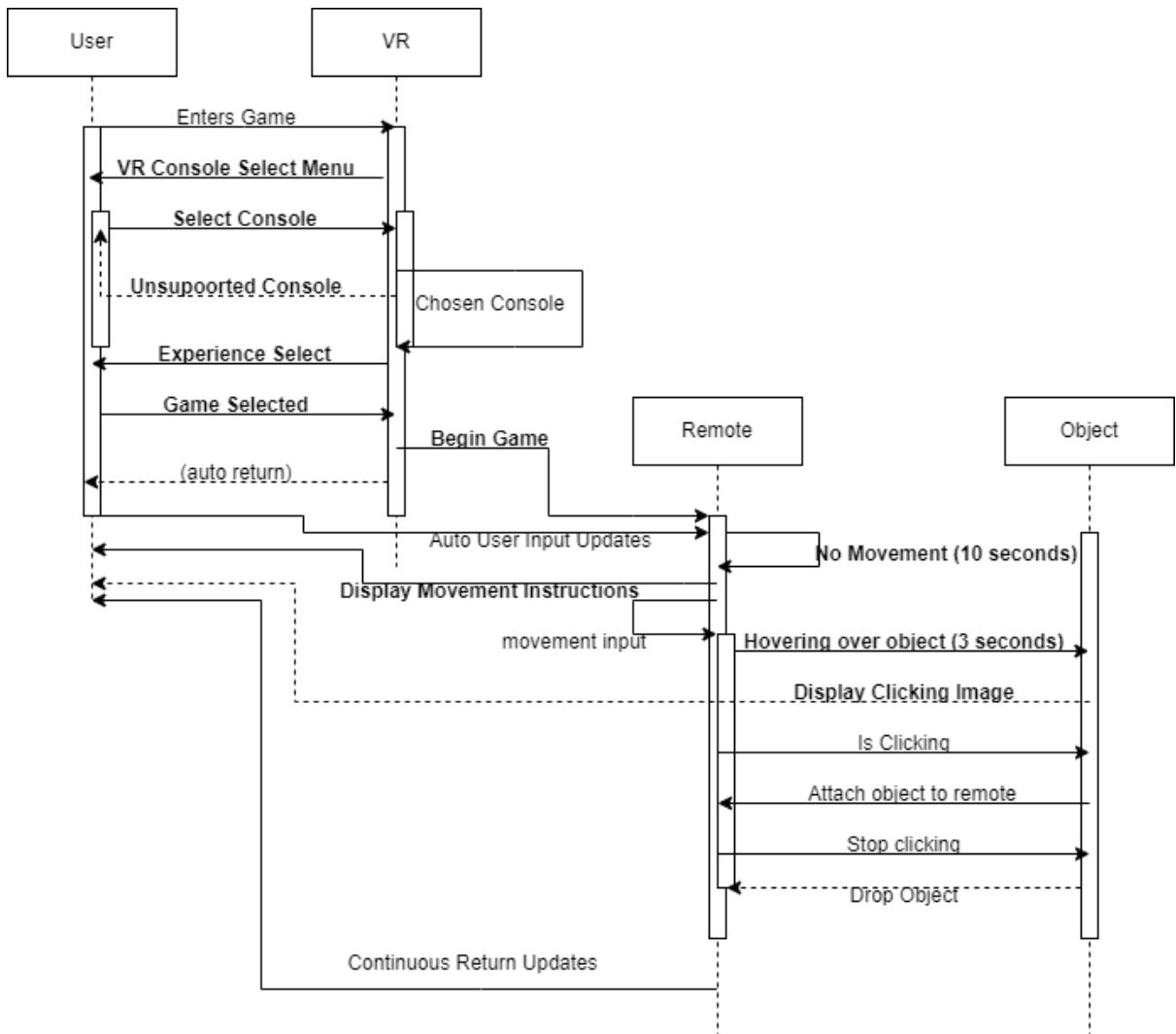
FUTURE VISION: UML USE CASE DIAGRAM



FUTURE VISION: UML ACTIVITY DIAGRAM



FUTURE VISION: UML SEQUENCE DIAGRAM



LESSONS LEARNED

EVIDENCE FROM THE SPRINT RETROSPECTIVES



Time management is key

Cannot wait to do work until the last minute
Backlog



Constant communication with the team

Constant communication with the community partner



Planning is important

We need to understand what is required and how to move forward
Broad tasks are not beneficial

THANK YOU!