User Interface Programming – Project Research Workbook

This workbook will help you focus your research for your project.  
Once you have answered these questions, use this information in your GUI Design Document.

|  |
| --- |
| Briefly describe the application or game you will design and create the user interface for.  The graphical user interface you design may be just a piece or sub-section of a larger application.  This is your initial idea to focus your research. The application described in your design document, or your final build, may end up being different from this description.  Keep in mind that you may want the project you develop in this subject to integrate with the project you create for the subject *Cross-Platform Development*. |
| Description: Through both UI and cross-platform development I will be developing the game *Potion Shopkeeper*.  The player is the potion maker of a small village and the game takes place in their house and garden. The player gathers ingredients from their garden, combines those ingredients in their laboratory to make potions, and gives those potions to villagers who present with varying problems. The player must experiment with different ingredients to make different potions which address the needs of the villagers.  Potion Shopkeeper is a relaxed, 1-player, 3D side-scrolling point & click game. The game is a simplified version of Potion Craft: Alchemist Simulator.  Potion Shopkeeper will be developed in Unity (2021.3.13f1) with Visual Studio 2022 with release builds for 3 platforms:  • standalone PC application (Windows 10).  • web browser (Chrome).  • mobile phone (Android App Bundle). Mandatory requirements: Using this document as the basis for both my UI and cross-platform development prototype, I must implement:   * Creating a 3D environment * Creating menus * Creating drop-down menu fields * Animations * Visual effects * Unity 3D player character with controller * Deploy to PC * Deploy to web * Deploy to Android * Create appropriate installers  Optional extras:  * A side-scrolling camera locked to the player * Adding music * Adding on-click sound effects * Adding an on-mouseover glow to objects * Pausing the music * Adjusting the music volume * Adjusting the effects volume * Changing the resolution * Changing the language |

|  |
| --- |
| Identify any industry best practices, standards, codes of practice, or similar requirements or frameworks that may be applicable to the graphical user interface you are designing.  You may want to consider developer guidelines for app or game stores, video game rating regulations, and industry best practice reflected in online blogs, guides, or conference recordings. |
| **General information:**  [Intro to UI versus UX](https://www.interaction-design.org/literature/topics/ui-design)  [Media classification ratings in Australia](https://www.classification.gov.au/classification-ratings/what-do-ratings-mean)  **Apple:**  I’m not developing for Apple devices, but Apple is an industry leader in aesthetically pleasing, effective, efficient and economical UI design.  [UI Dos and Don’ts](https://developer.apple.com/design/tips/)  [Human interface guidelines](https://developer.apple.com/design/human-interface-guidelines/)  **Android:**  [Designing for Android](https://developer.android.com/design/ui)  [Developing for Android](https://developer.android.com/develop/ui)  [Google Play Store developer policy centre](https://play.google.com/about/developer-content-policy/) |

|  |
| --- |
| Describe the functionality of your GUI.  Use diagrams or mock-ups to detail the front-end interface (what the user sees).  Describe the events or processing that occurs in response to actions the user performs using the interface (i.e., the back-end processing). |
| The Potion Shopkeeper GUI exists to enable the player to make potions and give them to villagers.  A screenshot of a computer screen  Description automatically generated  This is a miniature abstraction of the side-scrolling view of the 3D game world environment. The wireframe structure represents the player’s house, with a demarcation between the house and the garden (right-hand side of the screen).  Red: Villager object.  Green: Laboratory object.  Blue: Player object.  Orange: Ingredient objects (pickups).  As the player clicks around the environment, the Player object navigates to that click location.  If the player clicks on the Villager or the Laboratory, both their own inventory and the inventory of that game object will open so the player can move Ingredients and Potions between them.  If the player clicks the settings wheel, the ‘End the day’ button or the Inventory button, the relevant UI will open (inventory containers for drag and drop, settings menu, confirmation screen, etc). |

|  |
| --- |
| What prototyping tools are available to you? Which one(s) will you use? |
| My very first impression was written with pen and paper. **Build** prototyping will otherwise be executed through Unity incrementally by completion of tutorials and independent work.  **Documentation** prototyping will be completed through a combination of Excel, Word, and Visio/Draw.io |

|  |
| --- |
| What resources are required for the development of the user interface?  Include both software, and assets. |
| **Software:**  Visual Studio  Android Studio  Unity  **Assets:**   * Player inventory (UI front-end) * Player character’s inventory (UI back-end) * Laboratory inventory (UI front-end) * Laboratory inventory object (UI back end) * Villager inventory (UI front-end) * Villager game object (UI back-end) * Main menu button (trigger for menu) * Main menu UI (UI front-end) * Settings menu (UI front-end) * Menu scripts (UI back-end for both Main and Settings)   + Interactivity e.g. toggling, slider bar updates, buttons * Ingredient and Potion objects (UI front-end sprites) * Ingredient and Potion objects (UI back-end scripts) |

|  |
| --- |
| List and describe the information that is contained within a design document used to describe the design of a graphical user interface.  In how much detail is each piece of information typically described?  What diagrams may be included? |
| A GUI design document should contain sufficient information to show the appearance and functionality of a user interface or interfaces. Each section should be described in sufficient detail either to implement the functionality, or to facilitate further discussions as to how implementation will occur, subject to the project.  The document should include:   * A clear demonstration that the UI will facilitate the relevant aspects of the game; * the different screens or scenes including (or inferring) their purpose; * how the user will use the interface; * the relationship between different UI elements; * the UI paradigms in use; * the purpose of UI events and their actions; * the order in which UI activities will occur; * minimum requirements to run the application containing the GUI; * externalities on which the UI may rely (software, plugins, drivers, etc); * indicative screen proportionality; * flowcharts; * UML/XML charts; * Sample code snippets. |