**Functional Requirements:**

1. The App shall run on the Android OS and iOS.
2. The App shall contain a Tab Menu that displays five pressable Menu Buttons: a Home Menu Button, a Service Menu Button, a Favorites Menu Button, a Room Menu Button, and a Scavenger Hunt Menu Button.
3. The App shall display the Screen associated with a Menu Button when the User presses on the Menu Button.
4. The Where Am I Screen shall, upon determining the User's Current Location, display the Service Results Screen.
5. The Where Am I Screen shall display a Spinning Wheel icon and a “Searching For Nearest Building...” text while it determines the User's Current Location.
6. The App shall display an Error Message indicating that the User is too far away from the PSU Harrisburg campus if the distance between their current GPS Coordinates and the closest Building is determined to be greater than or equal to 1600 meters while the App is displaying the Where Am I Screen.
7. The App shall contain a Scavenger Hunt Screen that will allow the User the option of a more interactive way to learn about the available Services at PSU Harrisburg.
8. A Scavenger Hunt Clue shall contain at least 1 Scavenger Hunt Clue Description and a Scavenger Hunt Clue Solution.
9. A Scavenger Hunt Clue shall have the ability to contain an ordered list of Scavenger Hunt Clue Descriptions.
10. A Scavenger Hunt Clue shall have the ability to contain an optional Clue Picture.
11. A Scavenger Hunt Clue Solution shall be either a String or GPS Coordinates.
12. The Scavenger Hunt Screen shall display the Current Clue's Clue Description and, if exists, the Current Clue's Clue Picture.
13. The Scavenger Hunt Screen shall provide a Text Box if the Current Clue's Clue Solution is a String.
14. The Scavenger Hunt Screen shall provide the Scavenger Hunt Check Button at the bottom right of the screen, just above the Tab Menu.
15. The Scavenger Hunt Screen shall provide the Scavenger Hunt Hint Button at the bottom left of the screen, just above the Tab Menu.
16. The App shall show the Scavenger Hunt Screen with the next Scavenger Hunt Clue Description for the Current Clue when the User presses the Scavenger Hunt Hint Button.
17. The App shall show the Scavenger Hunt Screen with the first Scavenger Hunt Clue Description for the Current Clue when the User presses the Scavenger Hunt Hint Button and the currently displayed Scavenger Hunt Clue Description is the last in the Current Clue's list of Scavenger Hunt Clue Descriptions.
18. The App shall show the Scavenger Hunt Screen with the next unsolved Scavenger Hunt Clue upon the User pressing the Scavenger Hunt Check Button with Clue Input that matches the Current Clue's Scavenger Hunt Clue Solution.
19. The App shall mark the Current Clue as solved upon the User pressing the Scavenger Hunt Check Button with Clue Input that matches the Current Clue's Scavenger Hunt Clue Solution.
20. The App shall display an Error Message indicating that the User has completed the Scavenger Hunt when every Scavenger Hunt Clue has been marked as solved by the App.
21. The App shall mark every Scavenger Hunt Clue as unsolved after the User has solved every Scavenger Hunt Clue and the Error Message indicating Scavenger Hunt completion has been displayed.
22. The App shall contain a Service Database that maps a Service's name to Service Data.
23. The Service Search Screen shall contain a Search Bar at the top followed by a list of clickable Service List Items.
24. The App shall filter the Service List Items in the Service Search Screen by those whose Button Text contains a substring of the Search Bar's text.
25. The App shall display the Service Results Screen when the User presses a Service List Item from the Service Search Screen.
26. A Service List Item shall represent either a Web Service, a Building, or a Building Service.
27. The Service Results Screen shall display the Service List Item’s mapped Service Data from the Service Database
28. The Service Results Screen shall provide the Take Me There Button if the Service Data being displayed contains GPS Coordinates.
29. The Service Results Screen shall provide the Add To Favorites Button.
30. The App shall request for directional assistance via an Outside System such as Google Maps or Apple Maps to the currently displayed Service Data's GPS Coordinates upon the User pressing the Take Me There Button.
31. The App shall open the Operating System's default browser upon the User pressing on the Service's website URL from the Service Results Screen.
32. The App shall call the Service's contact phone number, upon the User pressing on the Service's contact phone number and pressing on the following Prompts 'yes' option from the Service Results Screen.
33. Service Data shall contain the Service's name, a quick textual description of the Service, a contact phone number of the Service (if Applicable), and website URL to the Service (if applicable).
34. The App shall contain a Room Database that maps a Room Number and Building name tuple to Room Data.
35. Room Data shall contain the Room Number, the name of the Building it's located in, a quick textual description of what the room is used for, and simple textual directions to the room's location on PSU Harrisburg's campus.
36. The Room Search Screen shall provide a Text Box for the User to input a Room Number.
37. The Room Search Screen shall provide a Dropdown Menu for the User to select a Building Name.
38. The Room Search Screen shall provide a Search Button for the User to submit their tuple of Room Number and Building Name that the App will use to search the Room Database.
39. The App shall display the Room Results Screen upon the User pressing the Search Button on the Room Search Screen with a Room Number and Building Name tuple that has been mapped to in the Room Database.
40. The App shall display an Error Message when the User presses the Search Button on the Room Search Screen with a Room Number and Building Name tuple that is unmapped in the Room Database.
41. The Room Results Screen shall display the mapped Room Data for the Room Number and Building Name tuple from the Room Database.
42. The App shall contain an Event Database that maps an Event's name to Event Data.
43. The App shall contain an Event Search Screen that allows the User to search through available Events by month.
44. The Service Results Screen shall display the Event List Item’s mapped Event Data from the Event Database
45. The App shall contain a Favorites Screen that allows the User to quickly get to the Service Results Screen for their favorited Services.
46. The App's installable binary shall be no larger than 60MB.
47. The App shall connect to any necessary Outside Systems for GPS Coordinates, directional assistance, internet access, or phone dialing access.
48. The App shall determine that the Scavenger Hunt Screen's Text Box's text matches the Current Clue's Clue Solution's text by a case-insensitive comparison of alphanumeric characters.
49. The App shall determine that the User's GPS Coordinates match the Current Clue's Clue Solution's GPS Coordinates if the distance between the two formerly mentioned GPS Coordinates is less than or equal to 16 meters.
50. The App shall display the Home Screen upon launch.
51. The App shall contain a Settings Screen that allows the User to swap between light and dark themes as well as access version information and credits.
52. The App shall display the associated Screen when the User presses a List Item on the Home Screen.
53. The App shall allow a User to add a Service to their Favorites from the Service Results Screen.
54. The App shall display the Tab Menu and all Menu Buttons at the bottom of every Screen except the Home Screen, Settings Screen, and Where Am I Screen.

**Non-Functional Requirements:**

1. The App shall minimize its usage of GPS.
2. The App shall minimize its battery drain.

**System Glossary:**

**App** – This mobile application.

**Add To Favorites Button** – A button on the Service Results Screen that allows the User to add the currently displayed Service to the Favorites Screen.

**Back Button** – A button located at the top left of the Service Results Screen, Room Results Screen, Event Results Screen, and Settings Screen. It allows the user to go back the previous Screen they were on.

**Building** – A building on PSU Harrisburg’s Campus. Example: Olmstead

**Building Name** – The name of a Building.

**Building Service** – A Service that resides inside of a Building. Example: Cafeteria & Sun Lab

**Button Text** – The text displayed on a button or Service List Item.

**Clue Input** – Either the String entered by the User in the Scavenger Hunt Screen's Text Box or the User's current GPS Coordinates.

**Coordinator** – A person who organizes an Event.

**Credits** – A list of developers that worked on the App and the copyright/trademark information required by Penn State Harrisburg.

**Current Location** – The Building nearest to the User.

**Current Clue** – The first Scavenger Hunt Clue that hasn't been marked as solved by the App.

**Delete Button** – A button that appears when the User swipes left over a Favorites List Item.

**Device** – A portable phone or tablet with internet connectivity and GPS capabilities that is capable of installing the App.

**Dropdown Menu** – A method of input that allows the user to select from one of many textual options.

**Error Message** – A text popup that describes an error that has occurred during the operation of the App.

**Event** – A travel-based event scheduled at Penn State Harrisburg.

**Event Data** - Contains information about a Service such as it’s name, a brief description, the date of the Event, the time of the Event, the location of the Event, the Coordinator's name, and the Coordinators phone number.

**Event Database** - A searchable list of mappings that associate an Event’s name to Event Data.

**Event List Item** – A button on the Event Search Screen that links to the Event Results Screen for the Event that it represents.

**Event Search Screen** – A Screen with a Dropdown Menu followed by Event List Items that allows the User to search through the available Events for the month that is selected in the Dropdown Menu.

**Event Results Screen** – A Screen that provides the User with information about the Event that they have selected from the Event Search Screen.

**Favorite List Item** – A button on the Favorites Screen that links to the Service Results Screen for the Service that the list item represents.

**Favorites Flag** – A flag variable stored in a Service’s Service Data that, when set to TRUE, includes the Service in the User’s Favorites List.

**Favorites Menu Button** –A Tab Menu Button that links to the Favorites Screen.

**Favorites Screen** – A Screen that presents the user with Favorite List Items representing the Services they have favorited.

**Focus** – Describes if the App is currently running and has control. The App is not in focus if the user locks the phone, presses the home button, opens the multitasking view, or receives a phone call.

**GPS** – Global Positioning System

**GPS Coordinates** – A set of coordinates either provided by the GPS or to be used with the GPS.

**GPS Status** – Whether the User's Device has GPS enabled and whether the Device has a GPS signal.

**Home List Item** – A list item on the Home Menu that links to the Screen associated with the list item's name.

**Home Menu Button** – A Tab Menu Button that links to the Home Screen.

**Home Screen** – The initial screen displayed upon launching the App. It contains a background image of the PSU Harrisburg Logo and a set of Home List Items.

**On-Screen Keyboard** – A touchable keyboard that is displayed on the Device to allow the User to enter textual input.

**Menu Button** – A selectable button within the Tab Menu. When selected, it changes the visible Screen.

**Navigation Application** – An application on the Device that specializes in giving directions.

**Operating System** – Android OS or iOS

**Outside System** – A framework or database with which the App must utilize in order to provide App functionality to the User.

**Prompt** – A text popup, similar to an Error Message, but allows the User a choice of 1 of 2 options. The options are usually yes/no or ok/cancel.

**PSU Harrisburg** – The Penn State University Harrisburg campus.

**Room** – A room within a Building at PSU Harrisburg.

**Room Data** – Contains the room’s number, the name of the Building it’s located in, a description of what the room is for, and simple directions of how to find the room.

**Room Database** – A searchable list of mappings that associate a Room Number and a Building name to Room Data.

**Room Menu Button** – A Tab Menu Button that links to the Room Search Screen.

**Room Number** – When combined with a Building name, creates a unique identifying tuple to be used for searching the Room Database.

**Room Results Screen** – A Screen that displays Room Data from the Room Database.

**Room Search Screen** – A Screen that allows user input of Room Number via a Text Box and building name via a Dropdown Menu. A Search Button towards the bottom of the Screen will, when pressed by the user, search the Room Database.

**Scavenger Hunt** – A system that gives Scavenger Hunt Clues to the User one at a time and prompts the User for a correct Solution. It can be used as a more interactive way to learn about the PSU Harrisburg campus and some of its available Services.

**Scavenger Hunt Check Button –** A button displayed on the Scavenger Hunt Screen that when pressed, will check if the User’s input matches the Scavenger Hunt Clue Solution.

**Scavenger Hunt Clue** – Holds Scavenger Hunt Clue Descriptions, a Scavenger Hunt Clue Picture (if applicable), and a Scavenger Hunt Clue Solution.

**Scavenger Hunt Clue Description** – A hint or question that is meant to lead the User towards the Scavenger Hunt Clue Solution.

**Scavenger Hunt Clue Picture** – An image intended to lead the User towards a Scavenger Hunt Clue Solution.

**Scavenger Hunt Clue Solution** – Contains data in the form of either a String or GPS Coordinates.

**Scavenger Hunt Hint Button** – A button displayed on the Scavenger Hunt Screen that when pressed, will provide the User with an additional Scavenger Hunt Clue Description.

**Scavenger Hunt Screen –** A Screen that displays a Scavenger Hunt Clue Description, Scavenger Hunt Clue Picture (if applicable), a Text Box if the Scavenger Hunt Clue Solution accepts a String, the Scavenger Hunt Hint Button, and the Scavenger Hunt Check Button.

**Scavenger Hunt Menu Button** – A Tab Menu button that links to the Scavenger Hunt Screen.

**Screen** – An interactive visual interface that is displayed to that User. Each screen has the Tab Menu and all Menu Buttons Displayed at the bottom.

**Search Bar** – A Text Box located at the top of a Screen. The App will filter the list items by those whose button text contains a substring of what text is entered in the text box.

**Search Button** – A button displayed on the Room Search Screen which initiates a search of the Room Database.

**Service –** Assistance or utility offered to students and faculty by the PSU Harrisburg campus. This can be a Web Service, Building, or Building Service

**Service Data** – Contains information about a Service such as it’s name, a brief description, GPS Coordinates (if applicable), contact phone number (if applicable), and website URL(if applicable).

**Service Database** – A searchable list of mappings that associate a Service’s name to Service Data.

**Service List Item** – A clickable button on the Service Search Screen whose button text is the name of a Service.

**Service Menu Button** – A Tab Menu Button that links to the Service Search Screen.

**Service Results Screen** – A Screen that displays Service Data from the Service Database. A Take Me There Button will appear towards the bottom of the screen if the Service Data contains GPS Coordinates.

**Service Search Screen** – A Screen that displays the Search Bar at the top, followed by a list of clickable Service List Items.

**Settings Screen** – A Screen that allows the User to change settings such as the theme for the app. It also allows the User to see the App's version number and Credits.

**String** – A case insensitive textual solution to a Scavenger Hunt Clue.

**System Error** – An unexpected flow that must be handled.

**Tab Menu** –A set of Menu Buttons, at the bottom of certain Screens.

**Take Me There Button** – A button displayed in the Service Results Screen that links to an Outside System for directions to the GPS Coordinates.

**Text Box** – A method of textual input that allows User to type a response.

**Theme** – The color palette that the App uses to display Screens.

**Unsolved Clue** – A Scavenger Hunt Clue that has not been marked as solved by the App.

**User** – A person that utilizes the App.

**Web Service** – A Service that resides outside the Campus and is accessed through the internet. Example: Angel & Elion

**Where Am I Screen** – An intermediate Screen between determining the User's Current Location and auto-navigating to the Service Results Screen for that Building. It will display a “Searching for nearest building...” message and a spinning icon.