Project Proposal for Team 2

Project Name: Paid Parking Lot Management Software

Abstract:

Due to various experiences with non-public parking garages/lots, our team has decided to develop a parking lot management software. Our application will help improve inefficient manual ticket management and give an overview of currently occupied parking spots. The application will be coded in Java with use of data structures, functions, and classes. The software should be able to run on most Windows, Mac, and Android operating systems. Our team plans on implementing a Software development life cycle that will be used to plan, design, test, and deploy the software.

Project Contact Information:

Software Engineer	**Drew Caldwell** **Brady Covyeou** **Sukhkaran Gill** **Dustin Groh**
Primary Client	**Indianapolis Parking Lot**
Instructor Mentor	**Liguo Yu**
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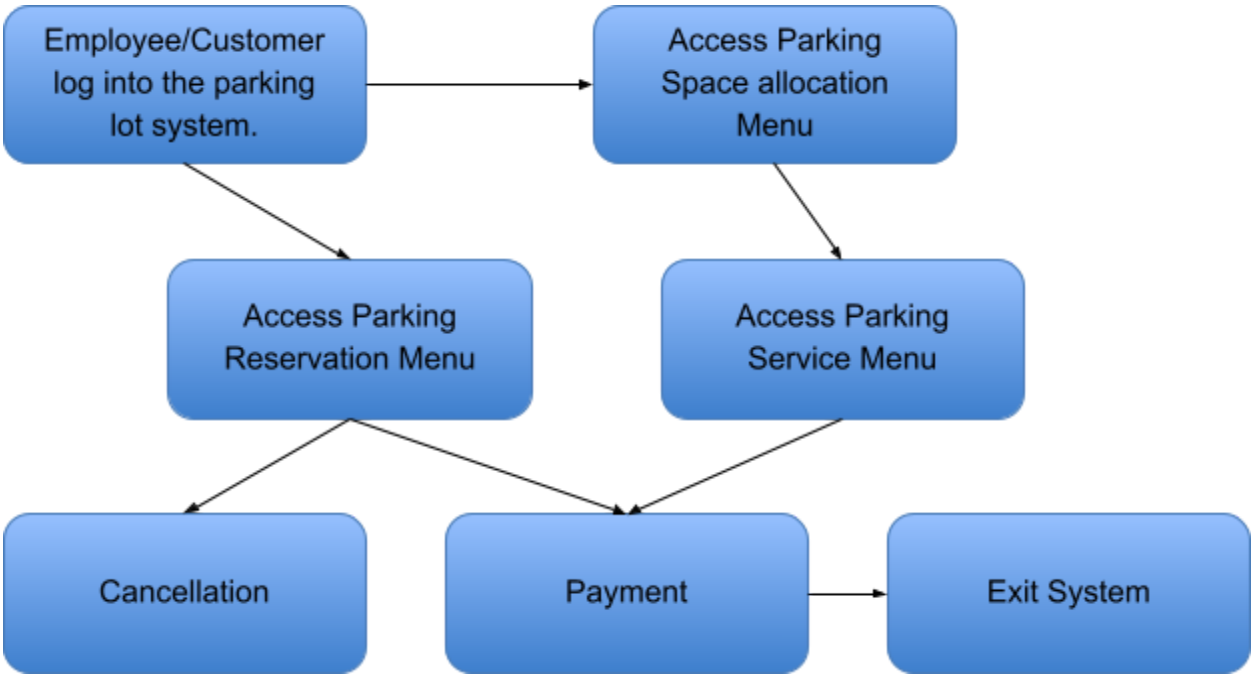
Background

While visiting a soccer game at Carroll Stadium at Indiana University between Indy eleven and Orange county, one of our team members parked their truck at a paid parking lot which was only managed by a single parking lot attendant. Our team member reported the attendant had no clue how many parking spots even existed in the parking lot. This raised many more questions: How many vehicles were in the parking lot? How many parking spots were occupied by vehicles? How many parking spots were empty? All of this information may have been of great concern in the mind of the parking lot attendant with no access to a proper logistics management system. To make a more efficient management system, Java will be used to build a Paid Parking Lot Software to automate the tasks of a parking lot attendant and have a more centralized database to store parking information.

Proposed System and Its Functionality:

The proposed system will issue tickets and manage parking spaces systematically and operate on the following cycle:



The application will show available versus occupied parking spaces. Users will have the option of choosing a spot to park now or reserve to park later. Admin will have the ability to cancel reserved parking spots.

List of menus to be developed:

- Employee/Customer log into the system: The System needs to allow customers or the employee to sign up, log in, and authenticate their identity.

- Access Parking Space Allocation Menu: This should provide functionality to manage and view available parking spaces, such as actual-time updates on occupancy and vacancy by scanning a barcode on a ticket.
- Access Parking Space Reservation Menu: Users should be capable of reserving parking areas in advance if not personally at the parking lot before the event starts.
- Access Parking Service Menu: Implement a payment system for customers to pay for parking services.

List of items to be developed:

- User Interface: The user interface must be intuitive, presenting easy GUI-based access to the parking lot system menu for all users.
- Data Integrity: Build a database using Java data structures to manage the space in the parking lot on all the floors.
- Report Generation: Create reports as needed for available space versus occupied space.

Programming Languages and Operating Systems:

- The application will require Windows 10/11 operating system.
- Front-end menus will be developed using the FlatLaf version of Java Swing.
- A database will be created using simple Java data structures.

Other Software and Required Hardware:

- Visual Studio will be used to assist with coding the parking lot system.
- The hardware required is Intel CPU, preferably 11^{th} generation, x64 based desktop or laptop with at least 8 GB of RAM and 20 GB of storage.

The Development Team:

- Sukhkaran Gill: Lead programmer and database administrator.
    - Responsible for creating a back-end database system and management in Java, will create Parking Lot Report System to view occupied and unoccupied parking spaces.
- Dustin Groh: Programmer and planning phase.
    - Responsible for front-end menu development using Java Swing, will create menus for each system. Assist with front to back end communication and communication between different systems.
- Drew Caldwell: Programmer and design phase.
    - Responsible for developing Parking Lot Reservation System. Work with database administrator to create a function to mark parking spaces as reserved.
- Brady Covyeou: Programmer and testing.
    - Responsible for developing Parking Lot Allocation and Service System. Work with database administrator to create a function to mark parking spaces as occupied or unoccupied.

(This is a rough outline of our team's individual responsibilities, work throughout the project will be collaborative, adjustments may be made and all members of the team will help each other when needed.)

Team Communications:

Our team will meet every Monday at 6:30 pm. Our team will use Discord for communication and collaboration. Our team will also use file sharing software such as Google Docs to manage our documentation.

Project Timeline:

Phase	Target Completion Date
Initial Project Proposal	26 Sep
Software Requirement Specification	31 Oct
System Design Specification	21 Nov
Product Demo	19 Dec