Ubiquitous and Mobile Computing
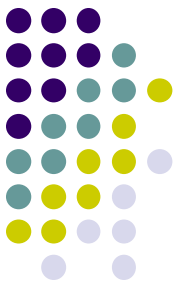# CS 528: *Goat Sale App*

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Problem Introduction/motivation

- No app available for WPI students for buying, selling or renting stuff

- Only medium is email which gets cumbersome for those who are not interested

- Need a proper platform instead of outlook

Methodology

- Seller use cases: Adding, modifying and deleting new listings

- Buyer use cases: Viewing and responding to listings

- Effective communication between entities involved without any inconvenience to unrelated entities

Difficulty Points

- Mobile Technologies & UI (16 pts)
  - Android Screens
  - Maps
  - Location sensing
  - Camera
- Ubiquitous Computing
  - Speech Recognition/GeoFencing (6 pts)
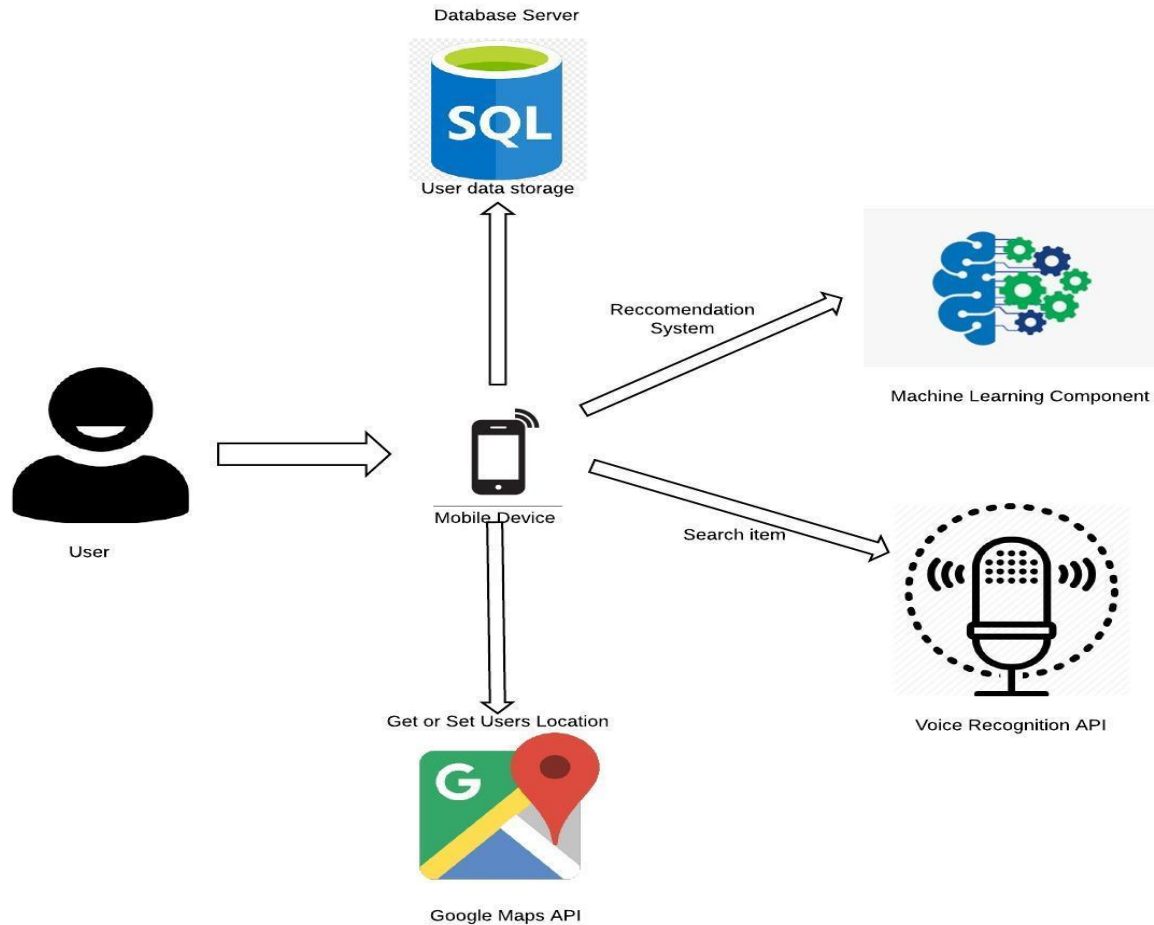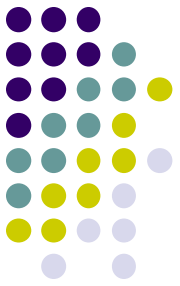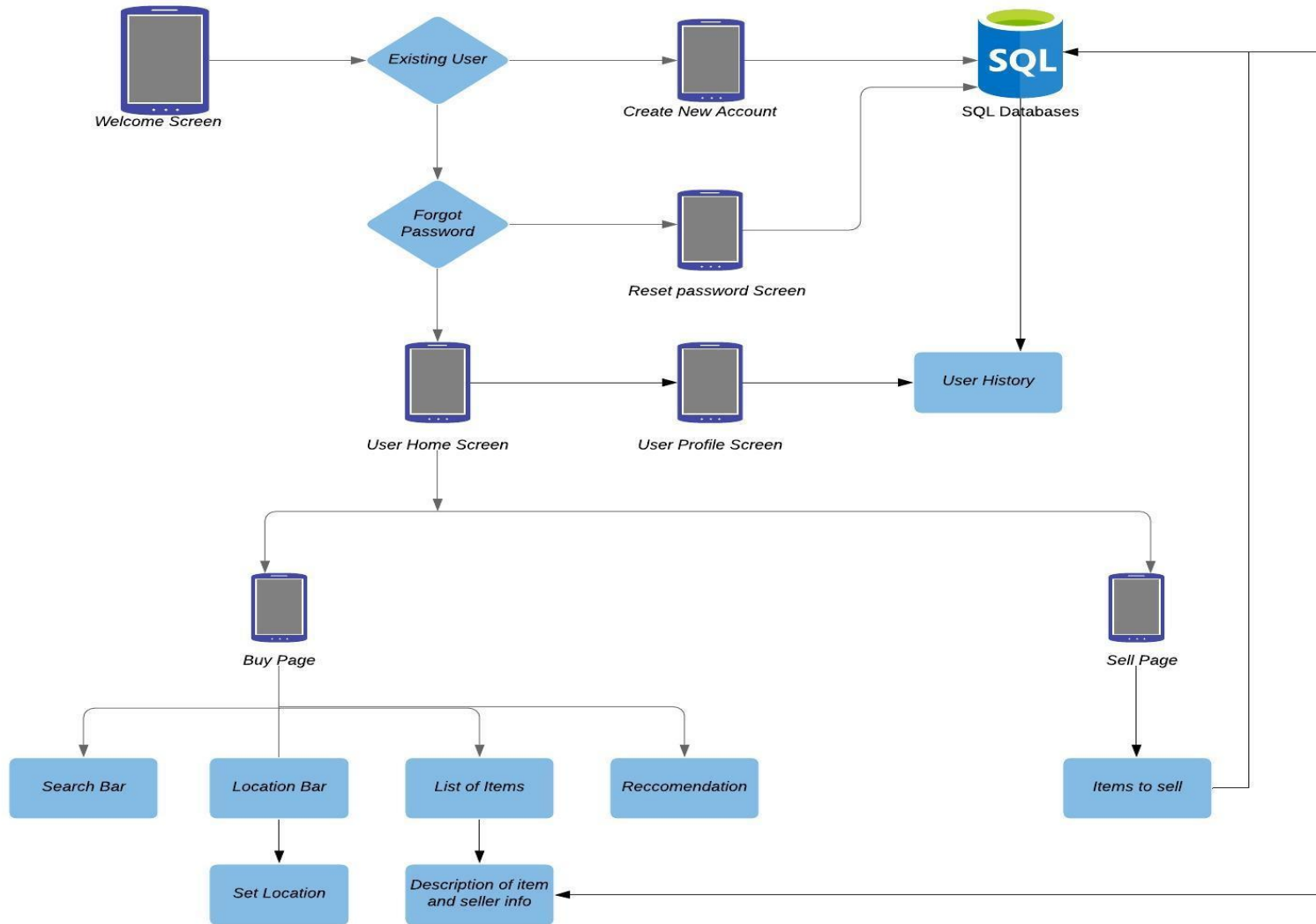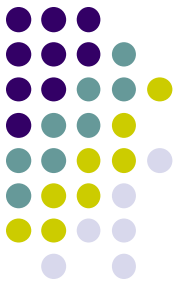- Machine Learning Component (Recommender System) (10 pts)

32 Pts

Related Work

- As of now, there's no application or website that allows for direct communication between buyers and sellers in WPI

- Websites like VarageSale, OfferUp and Bonavendi allow location-based trade but they're not specific to students of WPI
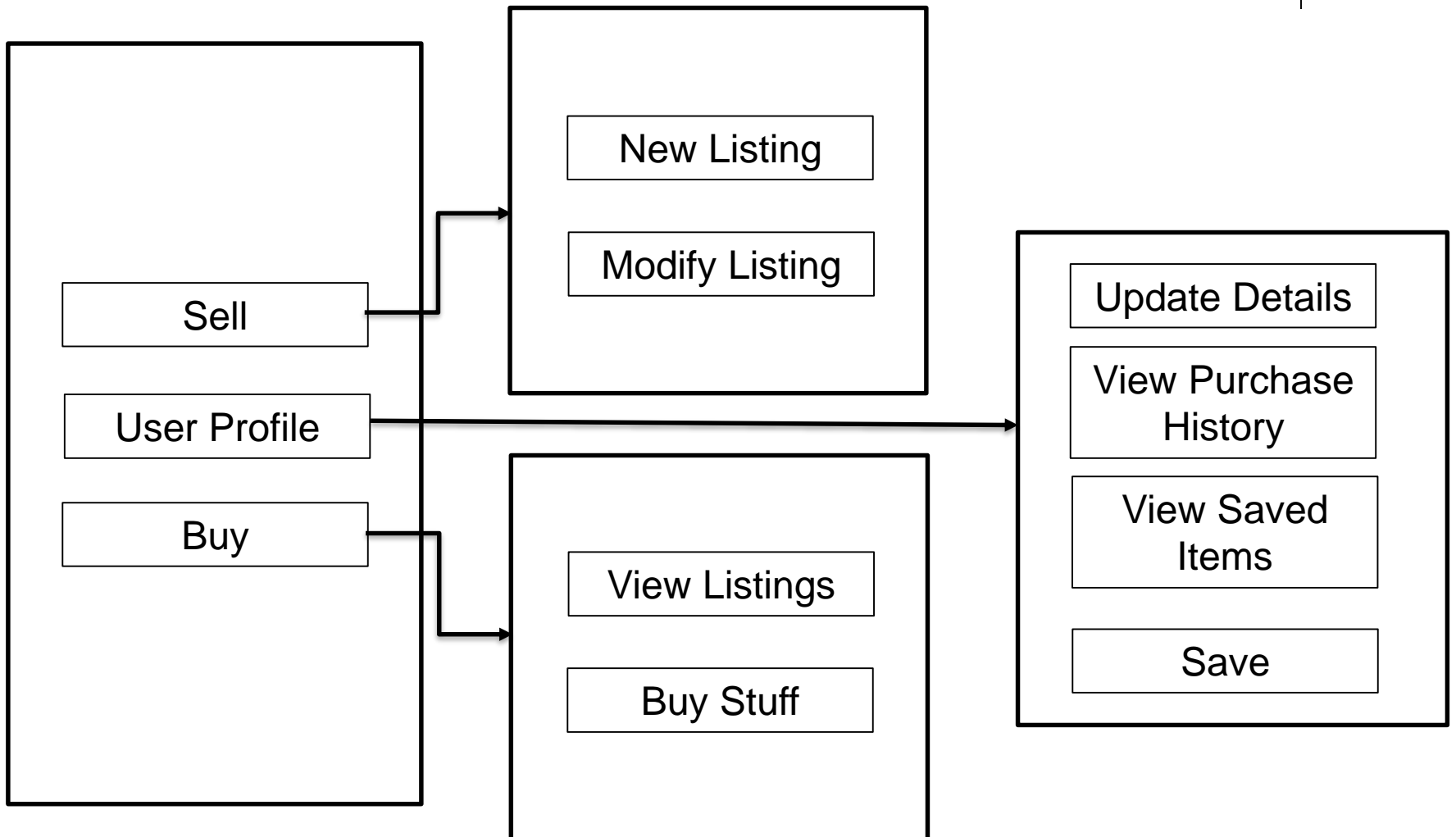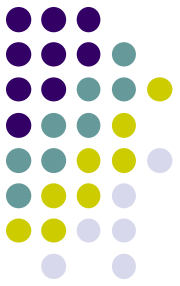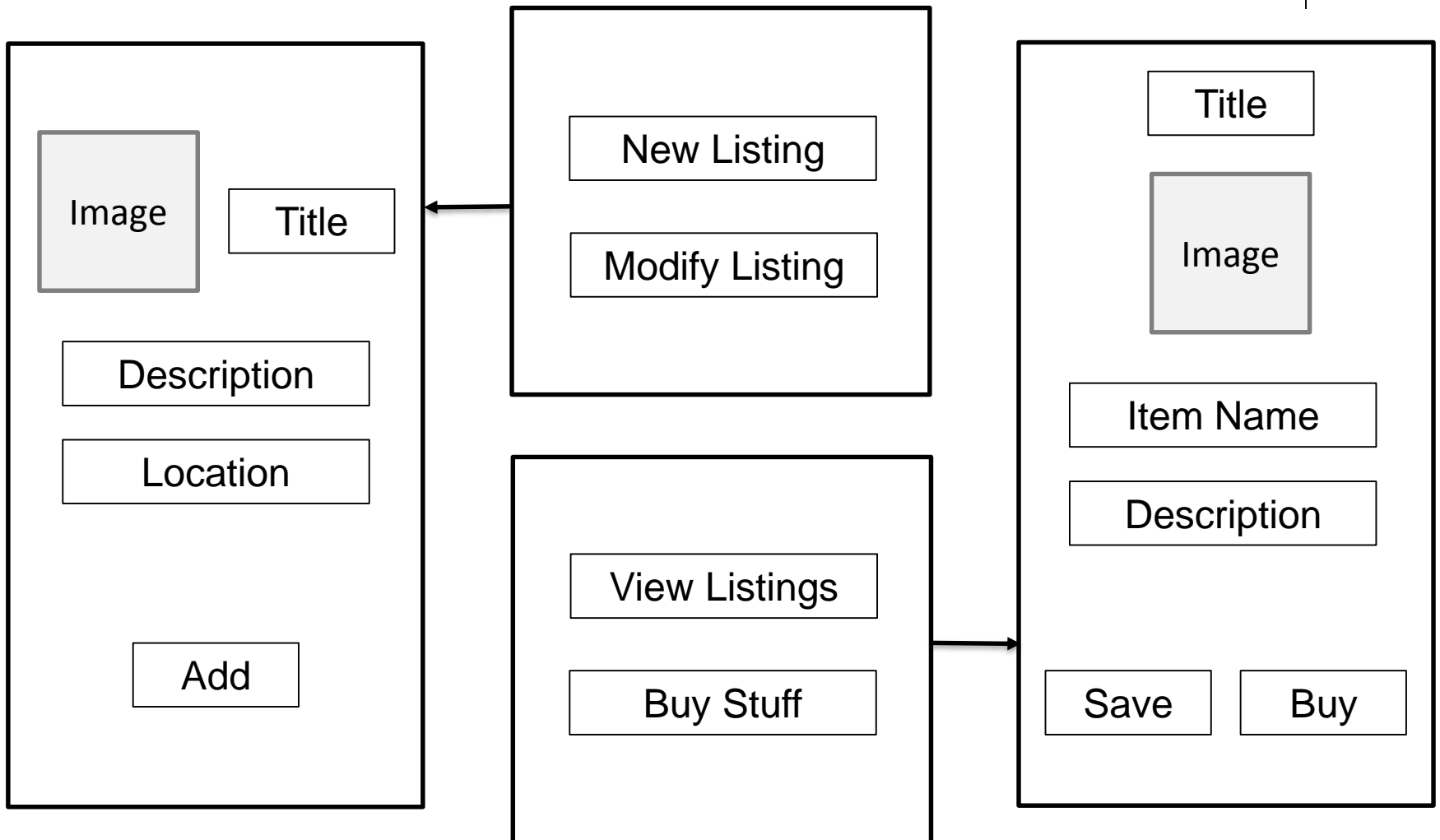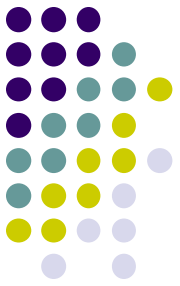
System Architecture

Database Server

SQL

User data storage

User

Mobile Device

Reccomendation System

Machine Learning Component

Search item

Voice Recognition API

Get or Set Users Location

Google Maps API

Flowchart

Implementation Plan

```
┌──────────────────┐      ┌────────────────────────┐
│                  │      │                        │
│                  │      │  ┌──────────────────┐   │
│                  │      │  │   New Listing    │   │
│                  │      │  └──────────────────┘   │
│                  │   ┌─▶│                        │
│  ┌────────────┐  │   │  │  ┌──────────────────┐   │
│  │    Sell    │──┼───┘  │  │  Modify Listing  │   │       ┌──────────────────────────┐
│  └────────────┘  │      │  └──────────────────┘   │       │                          │
│                  │      │                        │       │  ┌────────────────────┐  │
│  ┌────────────┐  │      └────────────────────────┘       │  │   Update Details   │  │
│  │User Profile│──┼───────────────────────────────────────▶│  └────────────────────┘  │
│  └────────────┘  │                                        │  ┌────────────────────┐  │
│                  │      ┌────────────────────────┐        │  │   View Purchase    │  │
│  ┌────────────┐  │      │                        │        │  │      History       │  │
│  │    Buy     │──┼───┐  │                        │        │  └────────────────────┘  │
│  └────────────┘  │   │  │  ┌──────────────────┐   │        │  ┌────────────────────┐  │
│                  │   └─▶│  │   View Listings  │   │        │  │   View Saved       │  │
│                  │      │  └──────────────────┘   │        │  │      Items         │  │
│                  │      │  ┌──────────────────┐   │        │  └────────────────────┘  │
│                  │      │  │    Buy Stuff     │   │        │  ┌────────────────────┐  │
│                  │      │  └──────────────────┘   │        │  │        Save        │  │
└──────────────────┘      └────────────────────────┘        │  └────────────────────┘  │
                                                            └──────────────────────────┘
```

Implementation Plan

Image | Title

Description

Location

Add

New Listing

Modify Listing

View Listings

Buy Stuff

Title

Image

Item Name

Description

Save | Buy

Use Case Diagram

Timeline
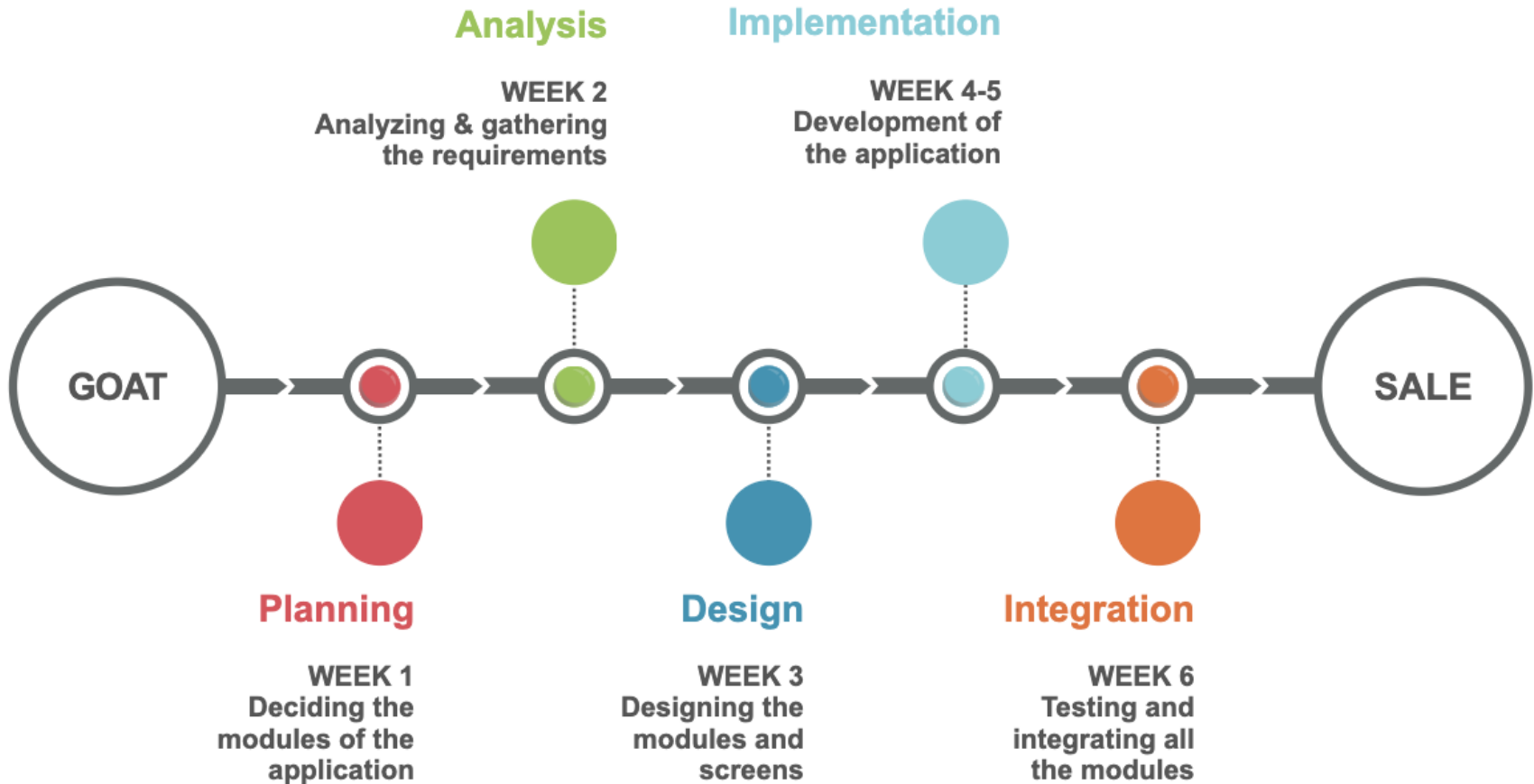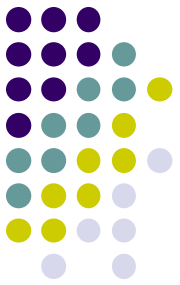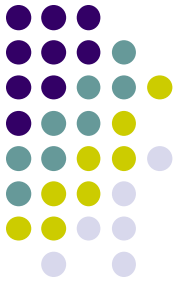
Analysis — WEEK 2 — Analyzing & gathering the requirements

Implementation — WEEK 4-5 — Development of the application

GOAT

Planning — WEEK 1 — Deciding the modules of the application

Design — WEEK 3 — Designing the modules and screens

Integration — WEEK 6 — Testing and integrating all the modules

SALE

Mock-Up

# Mock-Up
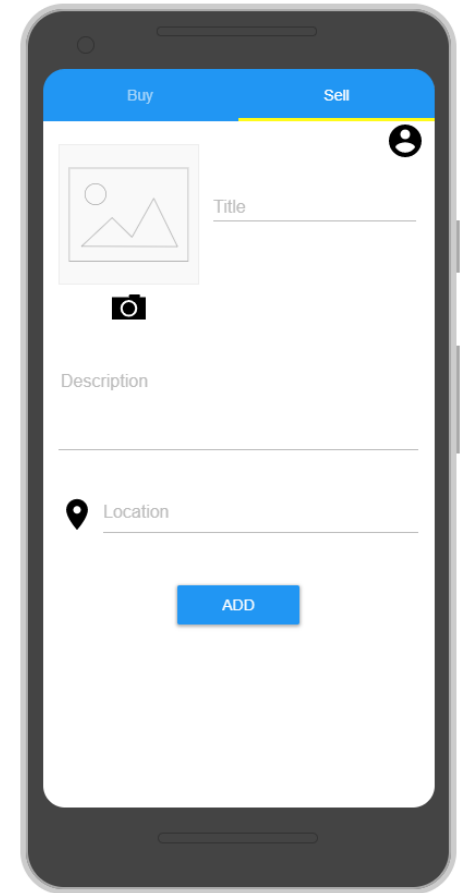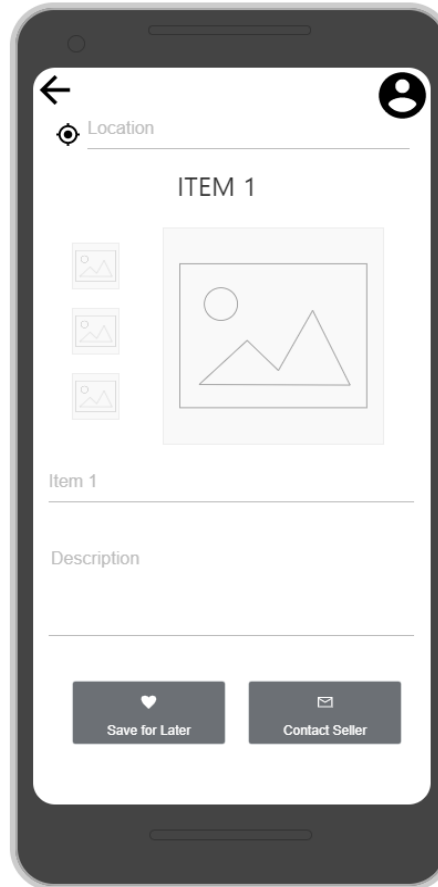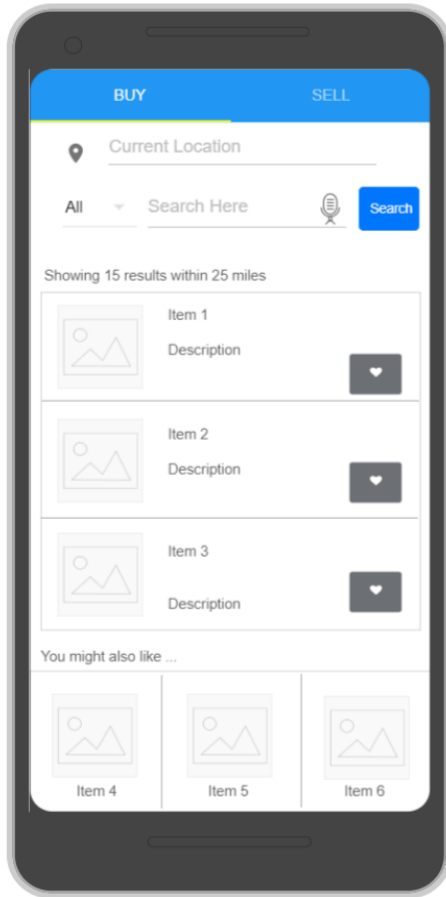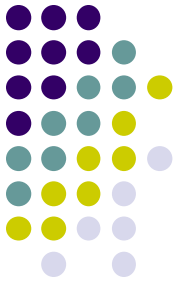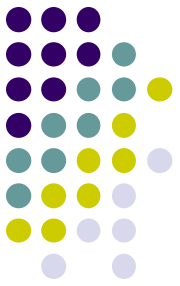
Evaluation Plan

- Survey
  - Circulation of App
- Alpha version test
  - Determination of usage of App
- Beta version test
- Feedback collection

Supplementary Features

- Location Based Travel Paths?
    - Users will be given an option to input a meeting point which can be modified as per the requirement
- Expansion to other colleges in Worcester?
    - Initially, the app will just be for the students of WPI
    - It can be extended to other areas later
- Relation to Potpourri list?
    - The app will be circulated on the potpourri list as well as other lists so that it becomes accessible to everyone
- Personalization?
    - Recommender system to give user-specific suggestions

Future Scope
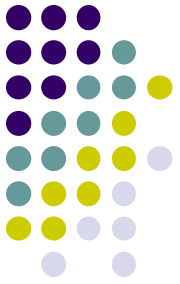
- Extension to other colleges in Worcester
- Adding new features such as leasing, tutor services etc.
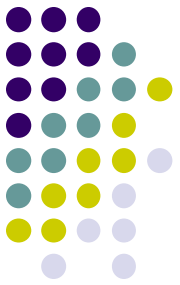
References

- *CS 528 Final Project Page, Fall Semester 2018*

  https://web.cs.wpi.edu/~emmanuel/courses/cs528/F18/projects/final_project/final_project.html

- *Varage Sell – Bull & Sell Locally*

  https://www.varagesale.com/

- Worcester Craigslist

  https://worcester.craigslist.org/