



# Campus Compass

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## Introduction

For many, one of the most important characteristics of a college is its campus. That is why it should be easy for prospective or incoming students to get to know the campus before showing up for their first day. Our app provides a seamless solution for those unable to visit campus or who would prefer a comprehensive campus navigation. Campus Compass has all campus details in the same place. From building locations to outdoor facilities and detailed location insights, our app is an essential resource — accessible from the comfort of one's home or as a supplemental resource while exploring campus grounds.

## IDE's and API's

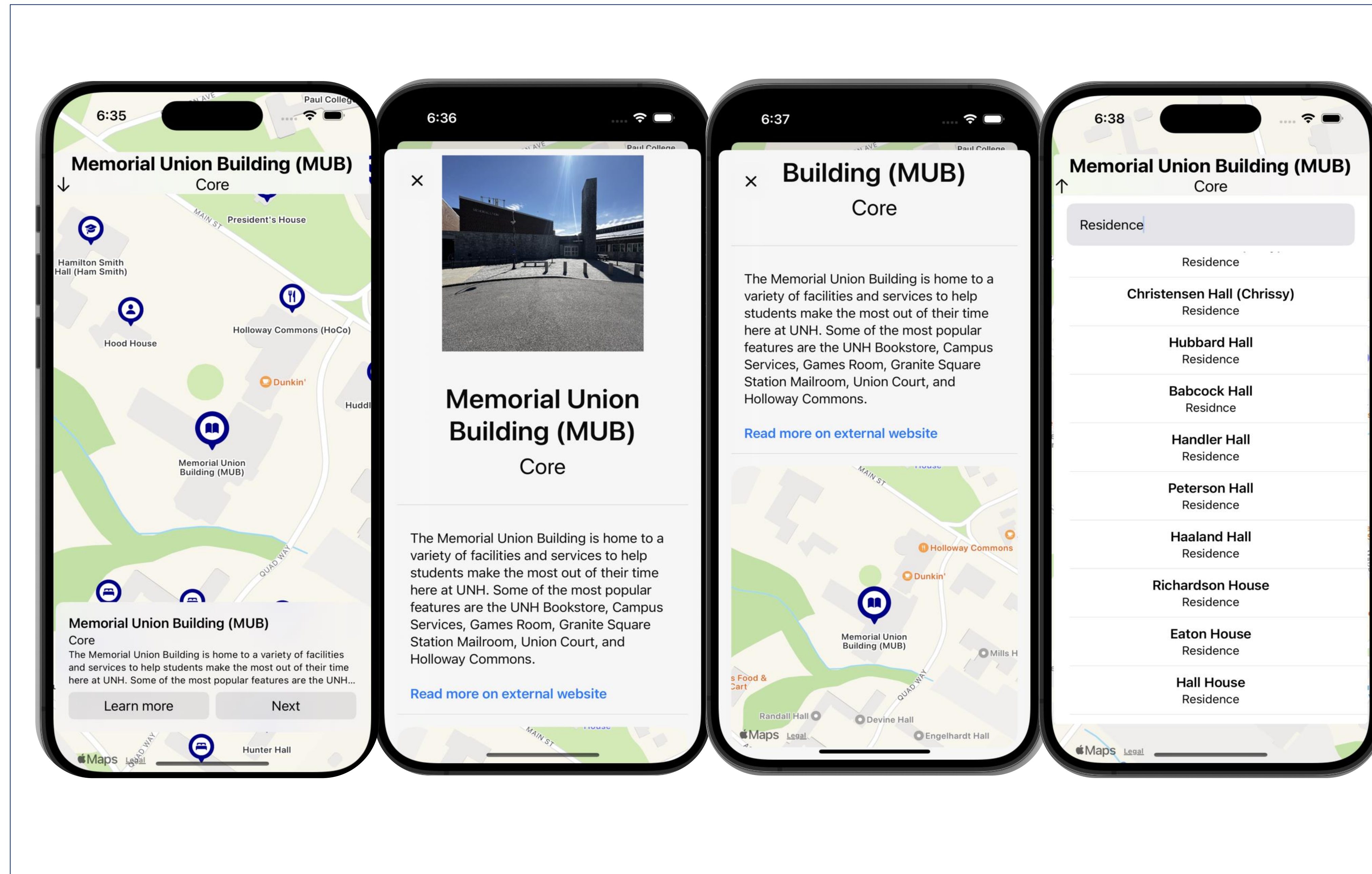
An IDE, or Integrated Development Environment, is a software tool that combines various features to help developers write, test, and debug their code more efficiently.

An API, or Application Programming Interface, is like a bridge that allows different software programs to communicate and share information. It defines how they can interact, making it easier for developers to connect and integrate different parts of their software systems.

## Methodology

To create an iOS app, we had to use Xcode, Apple's IDE for developing applications for their platforms. We wrote the app in SwiftUI and imported the MapKit API to integrate maps into our app and implement customizations and annotations specific to our needs. Accessing Xcode proved to be challenging for us. We wanted to create an iOS app since we all have iPhones, but only one of us has a MacBook. To access Xcode on our Windows laptops, we had to virtually log into a MacMini located in the IOL. This solution worked, but the virtual MacMini was very slow, making it difficult to watch the app build as we coded. Our first step was to create code for managing our locations. We organized it within a location structure for easy referencing and maintenance. Next, we developed a map view by placing markers for each location on the campus map. This feature, combined with detailed views, allows users to gain a more comprehensive understanding of the campus layout.

## App Views



## Location Structure

### Outline

In our app, each location is represented as an object with specific properties:

- Name:** The name of the location.
- Use:** Categorization of the location's purpose, such as Core, Dining, Transportation, Health, Recreation, Athletics, Administration, Academic - CEPS, Academic - CHHS, Academic - COLA, Academic - COLSA, Academic - Paul, Academic - Other, ROTC, and Residence.
- Coordinates:** Geographical coordinates of the location. Coordinates were primarily sourced from Google Maps, with adjustments made for accuracy when necessary.
- Description:** Descriptive information about each location, sourced from the UNH website.
- Asset Names:** Image names associated with each location.
- Link:** A hyperlink providing access to additional information for further exploration.

```
struct Location : Identifiable, Equatable {
    // identifiable allows use in foreach loops
    let name : String
    let use : String
    let coordinates : CLLocationCoordinate2D
    let description : String
    let assetNames : [String]
    let link : String

    var id : String{name} // id for loops

    static func == (lhs: Location, rhs: Location) -> Bool {
        lhs.id == rhs.id
    }
}

class LocationService {
    static var locations: [Location] = [ // list of locations
        Location(
            name: "Memorial Union Building (MUB)",
            use: "Core",
            coordinates: CLLocationCoordinate2D(latitude: 43.134499058847865,
            longitude: -70.930046634757),
            description: "The Memorial Union Building is home to a variety of
            facilities and services to help students make the most out of
            their time here at UNH. Some of the most popular features are the
            UNH Bookstore, Campus Services, Games Room, Granite Square Station
            Mailroom, Union Court, and Holloway Commons.",
            assetNames: ["MUB"], // put pics and stuff in here
            link: "https://www.unh.edu/mub/" // a link to unh website
        ),
    ],
}
```



## Results

Our app is an interactive map of the campus with markers on each location. When a location is selected, information about it is displayed. Users can search for specific locations or use the 'Next' button to be guided through campus in a logical order. When users are on campus, it can show their location and help with navigation. Campus Compass is both an essential resource for exploring campus and an immersive virtual tour experience.

## Future Work

As we look ahead, we see opportunities to further enhance our app's functionality. Here are some features worth considering for future development:

- Routing Assistance:** Implementing routing capabilities to help users navigate to their desired locations efficiently.
- Tailored Tours:** Offering pre-defined tour routes catered to specific interests or user profiles, such as showcasing key campus landmarks or guiding incoming students about major-specific buildings.
- Seasonal Imagery:** Incorporating images representing different seasons to provide users with a varied and immersive experience, regardless of their geographical location.
- Custom Route Creation:** Allowing users to create personalized routes by selecting preferred locations, enabling them to tailor their navigation experience to their individual needs and preferences.

These potential features showcase the versatility and adaptability of our app, paving the way for future growth and innovation.

## Acknowledgments

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## References

- <https://developer.apple.com/ios/>
- <https://developer.apple.com/xcode/>
- <https://developer.apple.com/xcode/swiftui/>