**Use Case 1: FindPath**

Summary:

This use case enables skiers, like our example user Emma, to find the best route from their current location to a desired destination within the ski resort. The app accounts for Emma's skiing skill level, slope difficulty preferences, current slope and lift status, and whether Emma prefers to ski down or take a lift.

Actors:

Primary Actor: Jess, the skier

Secondary Actors: Ski Lifts, Ski Slopes

Entry Condition:

1. Emma has her GPS and internet data services enabled.

2. The app has real-time information on the status of lifts and slopes, including any closures or maintenance activities.

Flow of Events:

1. Specify Destination and Preferences: Emma opens the app and selects the "FindPath" feature. She inputs her destination and skiing preferences, including skill level (beginner, intermediate, advanced) and slope difficulty preference (blue, red, black).

2. App Suggests Routes: Based on Emma’s location, preferences, and the current status of slopes and lifts, the app provides a list of possible routes. Each route includes details like total distance, estimated time, and a breakdown of slope difficulties.

3. Select Route: Emma reviews the options and selects the most appealing route. The app then provides detailed navigation instructions, including which lifts to take and where to start skiing down.

4. Navigate to Destination: Emma follows the route provided by the app to her destination, making adjustments as necessary for any real-time updates.

5. Arrival:Emma reaches her destination successfully.

Exit Conditions:

1. Emma successfully arrives at her desired destination using a route that matches her skiing preferences and skill level.

2. The app's database of slopes and lifts is continuously updated with real-time status information.

Alternative Flows:

1. Preferences Cannot Be Met:

a. Scenario: Emma's preferences for slope difficulty cannot be met due to closures or maintenance.

b. Alternative Flow: The app suggests the best possible alternative routes, highlighting the differences from Emma's preferences.

2. Lift Malfunction:

a. Scenario: A lift on Emma's planned route stops working unexpectedly.

b. Alternative Flow: The app immediately suggests an alternative route that avoids the malfunctioning lift.

3. Slope Closure:

a. Scenario: A slope on Emma's route is suddenly closed for safety reasons.

b. Alternative Flow: The app recalculates the route, providing alternatives that avoid the closed slope.

**Sequence Diagram**

A screenshot of a computer

Description automatically generated

**Use Case 2: RequestEmergency**

Summary:

This use case allows skiers, such as our example user Jack, to quickly request emergency assistance. The app will send Jack's location and a distress signal to the nearest ski patrol or emergency services, ensuring rapid response.

Actors:

Primary Actor: Jack, the skier

Secondary Actors: Ski Patrol, Emergency Services

Entry Condition:

1. Jack has GPS and internet data services enabled.

2. The app is equipped with a feature to send an emergency signal along with the skier's current location.

Flow of Events:

1. Initiate Emergency Signal: Jack finds himself in need of emergency assistance. He opens the app and selects the "RequestEmergency" feature.

2. Confirm Emergency:- The app asks Jack to confirm that he wants to send an emergency signal. This step ensures that emergency services are not dispatched for false alarms.

3. Signal Sent: Upon confirmation, the app sends an emergency signal with Jack's exact location to the nearest ski patrol and emergency services.

4. Wait for Assistance: The app provides Jack with an estimated time of arrival for assistance and offers basic first aid tips while he waits.

5. Assistance Arrives: Ski patrol or emergency services arrive to assist Jack.

Exit Conditions:

1. Emergency assistance is successfully dispatched to Jack's location, and he receives the help he needs.

2. The incident is logged for review to potentially improve safety measures within the ski resort.

Alternative Flows:

1. Poor Connectivity:

a. Scenario: Jack tries to send an emergency signal, but his phone has poor data connectivity.

b. Alternative Flow: The app attempts to send the distress signal via SMS or uses satellite technology (if available) to ensure the signal is sent.

2. Accidental Activation:

a. Scenario: Jack accidentally activates the emergency signal.

**Sequence Diagram**

A diagram of emergency signal

Description automatically generated

**Use Case 3: FindFacility**

Summary:

This use case allows skiers, such as our example user, Mia, to quickly find facilities like restaurants and restrooms within the ski resort using the app. Based on Mia's current location, preferences (if searching for a restaurant), and the facilities' operating status, the app guides her to her chosen facility efficiently.

Actors:

Primary Actor: Mia, the skier seeking a facility

Secondary Actors: Restaurants, Restrooms

Entry Condition:

1. Mia has GPS and internet data services enabled on her mobile device.

2. The app has updated information on all facilities within the ski area, including their status (open/closed), operating hours, and, for restaurants, menus and seating capacity.

Flow of Events:

1. Select Facility Type:Mia opens the app and selects the "FindFacility" feature. She chooses the type of facility she is looking for: restaurant or restroom.

2. Specify Preferences (for Restaurants): If Mia is looking for a restaurant, she specifies her dining preferences, such as type of cuisine, dietary restrictions, and desired ambiance. This step is skipped if Mia is searching for a restroom.

3. App Lists Nearby Facilities: Based on Mia’s current location and specified preferences (for restaurants), the app displays a list of nearby facilities. For restaurants, the list includes details like menu highlights, average wait times, and current seating availability. For restrooms, the list shows the distance and the route to the nearest ones.

4. Select Facility: Mia reviews the options and selects a facility. For restaurants, the app also shows the quickest route considering Mia's skiing ability and current slope conditions. For restrooms, it provides the most direct route.

5. Navigate to Facility: Mia follows the route provided by the app to reach the selected facility.

6. Arrival: Mia arrives at the facility and utilizes the services.

Exit Conditions:

1. Mia successfully finds and uses the facility that fits her needs.

2. The app's database of facilities is updated in real-time with their operational status.

Alternative Flows:

1. Facility Closure or Full Capacity

a. Scenario: Mia selects a facility, but it is either temporarily closed for maintenance or has reached full capacity.

b. Alternative Flow: The app immediately suggests the nearest alternative facilities.

2. Data Connection Issues:

a. Scenario: Mia tries to use the "FindFacility" feature, but the app struggles to load the latest facility information due to poor data connectivity.

b. Alternative Flow: The app switches to an offline mode, providing Mia with facility options based on the last available data, and suggests checking facility status upon arrival.

3. Special Requests for Dining:

a. Scenario: Mia has specific dining needs that are not met by the available restaurants (e.g., a unique dietary restriction).

b. Alternative Flow: The app suggests contacting restaurants directly for special accommodations or offers packaged meal options that meet her dietary needs.

**Sequence Diagram**

A diagram of a restaurant

Description automatically generated

**UseCase Diagram**

A diagram of a system

Description automatically generated

**Domain Model**

A diagram of a computer

Description automatically generated