

Use Case: Displaying Metrics

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User Story Description

As a user, I want to display certain metrics for each loaded track.

Identification of Actor(s)

The User and the GPS App

Pre-conditions

Use Case 1

Scenarios

Basic/Normal Flow

| User | GPS App |
|--|---|
| 1. User pushes Metric | |
| | 2. Pops up a dialog allowing the use to select the desired track to display |
| 3. User selects which track to display metrics for | |
| | 4. Calculates the metrics for the desired track and displays the metrics |

Alternate Flow 1: User clicks cancel in the pop-up dialog

| User | GPS |
|-----------------------------|--|
| 1. User pushes Metric | |
| | 2. Pops up a dialog allowing the user to select the desired track to display |
| 3. User selects cancel/exit | |
| | 4. Returns to the main screen |

Alternate Flow 2: Track contained less than 2 points

| User | GPS |
|--|--|
| 1. User pushes Metric | |
| | 2. Pops up a spinner dialog |
| 3. User selects which track to display the metrics for | |
| | 4. Calculates the metrics for the desired track and displays the metrics except the distance and speed values. Instead displaying "Distance and Speed cannot be computed" for distance and speed |

Post-conditions

Initially displays the metrics from the “first” track in the collection but can display any of the selected tracks from the collection

Additional Requirements

Make sure that Use Case 1 has succeeded

Actor- User Boundary Element- Main UI and Dialog Control Element- Controller
Entity Element- Track Handler

Textual Analysis

Noun Verb

analyze your scenario (as
above), not the user story
itself

2. As a **user, I want to display certain metrics for each loaded track.**

Acceptance criteria:

- If multiple **tracks** are **loaded**, the **user** shall be able to **select** which **track** whose **metrics** are to be **displayed**.
- The **metrics** shall be **displayed** in the main screen.
- The **metrics** shall include:
 1. the name of the **track**, obtained from the <name> element of the **GPX file**
 2. the minimum and maximum **latitude** in units of degrees, to 2 decimal places of precision.
 3. the minimum and maximum **longitude** in units of degrees, to 2 decimal places of precision.
 4. the minimum and maximum **elevation** in units of both meters and feet, to 2 decimal places of precision.
 5. the total **distance** traveled in a **track**. The total **track distance** (in units of both kilometers and miles) is to be displayed to 2 decimal places of precision, computed by summing distances between individual GPS points, and accounting for elevation changes. Note: It is not necessary to account for the curvature of the earth - since distances between successive coordinates acquired by a GPS device are relatively small, you can assume a straight line between any two coordinates, rather than an arc. See this page that contains the relevant formulas.
 6. the average **speed** (in both kilometers/hour and miles/hour) over the entire track, to 2 decimal places of precision.
 7. the maximum **speed** (in both kilometers/hour and miles/hour) that occurred during the entire track, to 2 decimal places of precision.
- If a **track** contains less than two points, a message indicating that distance and speed cannot be **computed** shall be displayed instead of actual distance and speed values.

Objects/Variables

Min and Max Latitude
Min and Max Longitude
Min and Max Elevation
Total Distance in miles and kilometers
Average Speed in MPH and KPH
Max Speed in MPH and KPH

Methods

getMin/MaxLat
getMin/MaxLong
getMin/MaxElevation
calcTotalDistanceMiles/Kilo
calcAvgSpeedMPH/KPH
calcMaxSpeedMPH/KPH

dialog, track, metrics

File

Load

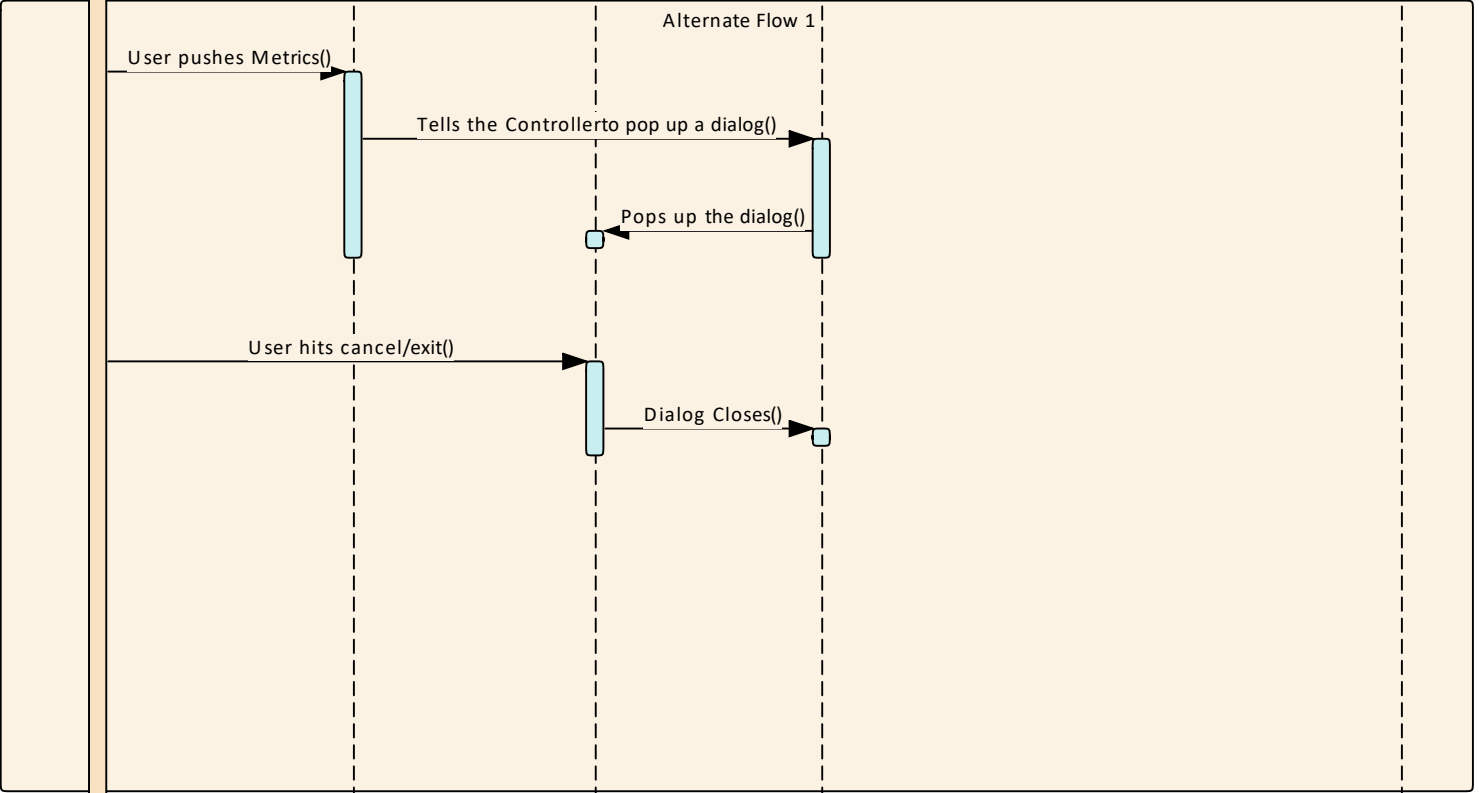
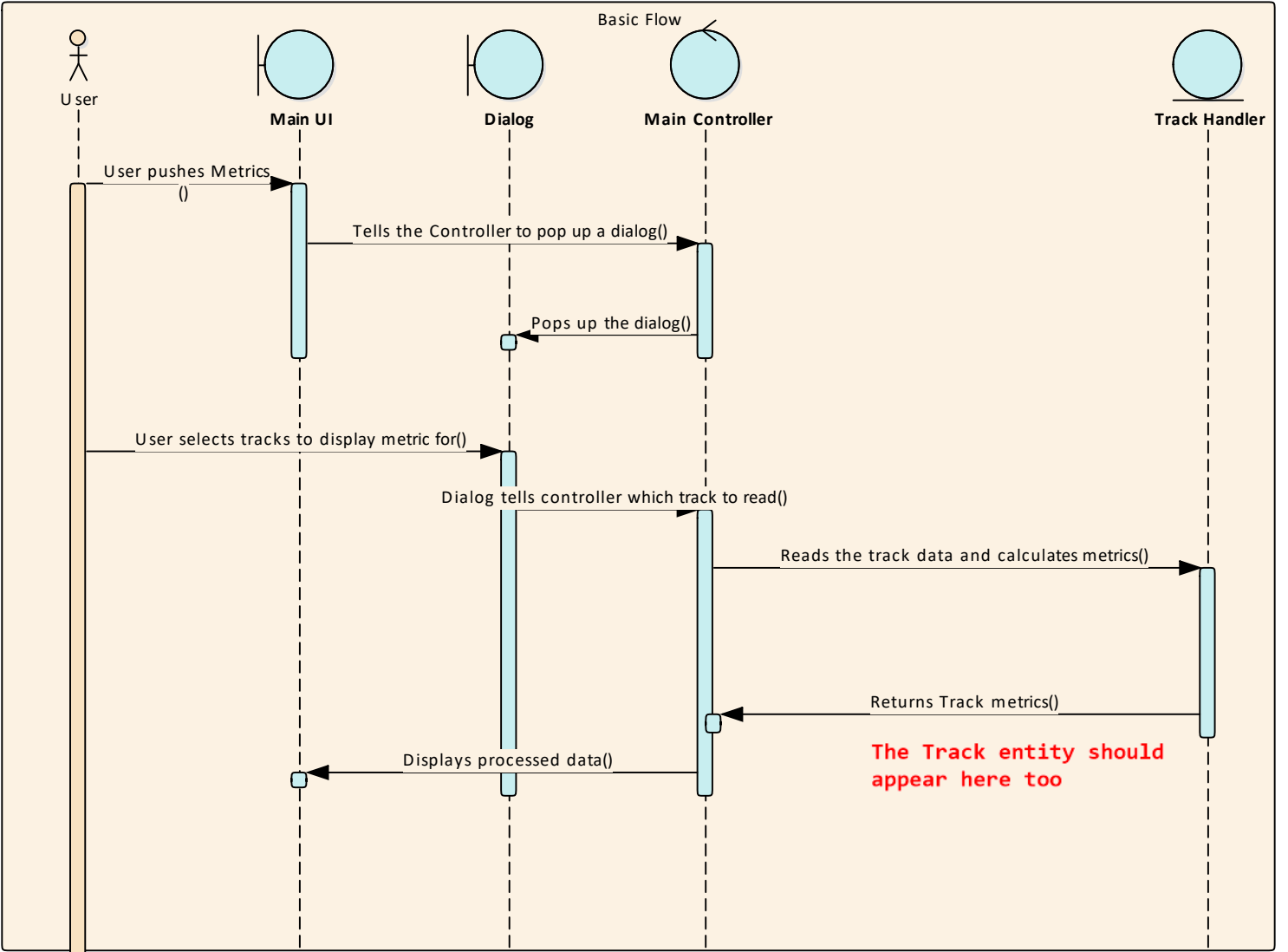
Metrics

Draw

Quit

Track Name

Latitude Max Min Longitude Max Min Elevation Max Min Total Distance Miles KilometersAverage Speed MPH KPHMaximum Speed MPH KPH



Alternate Flow 2

