# EdWelcome

## A tour app for the University of Edinburgh

INF2C Software Engineering (inf2c-se) — Coursework 1

Team:

- Elena Lapinskaite (s1605619@inf.ed.ac.uk)
- Qais Patankar (s1620208@inf.ed.ac.uk)

---

# The application

EdWelcome is a GPS-based mobile tour app for prospective students of The University of Edinburgh, who want to get to know the university campuses. The tours include long tours around the main university areas, and more in-depth tours of individual Schools and various University buildings. The Student Ambassadors create and manage the tours. All tours are taken by foot.

The University of Edinburgh is referred to as the University here and below. For further general information about the nature of the app, please visit this URL.

# Stakeholders and their interests

## Primary Stakeholders

1. Prospective students — benefit from the app by learning more about the university, its schools and main monuments.
2. Prospective students with disabilities — benefit from the app by being able to do a University tour at their own pace.
3. Student Ambassadors — add value to the app by creating and maintaining high-quality tours.
4. Admissions Staff — benefit from the app as it's an additional tool to help prospective students find out more about the University.

## Secondary Stakeholders

5. Current students — receive the benefit of learning new things about the campuses and buildings they do not normally encounter.
6. Parents/guardians of students — benefit from the app as it allows them to learn more about the institution as their children's potential place of study.
7. Tourists and other visitors — benefit from the leisure aspect of the widely accessible tours as the University is a tourist attraction; add value to the app by sharing and reviewing it on travel websites.

# Functional requirements

## System State

1. No tour selected state
    a. The user may be reading the general app information
2. Browse tour state
    a. The user may be selecting a tour
    b. The user may filter between campuses
3. Tour preview state
    a. The user may be viewing the general tour annotation.
    b. The user may be also be viewing an overview of waypoints and legs
        i. The corresponding annotations can be previewed.
        ii. The corresponding physical locations can also be previewed.
4. Follow tour state
    a. The user has not reached the first waypoint, so they are being instructed to go to the first waypoint.
    b. Tour overview, showing their current progress across the entirety of the tour.
    c. The user is at a waypoint: waypoint annotation is shown
    d. The user is at a leg:
        i. If there is a leg annotation, the leg annotation is shown.
        ii. If there is no leg annotation, a preview of the next waypoint annotation is shown.
5. Author tour state (only accessible to student ambassadors, referred to as authors)
    a. New tour creation — the author can set the general tour annotation and other metadata (such as the title or description)
    b. Tracking tour
        i. the author shall follow the actual route of the tour they wish to create
        ii. Optionally, they may also update the tour for the active leg/waypoint (see “Update tour” below)
    c. Update tour
        i. The author can update the leg/waypoint/general tour annotations.
        ii. The author chooses to delete the waypoint, and must confirm deletion.
    d. Preview tour
        i. The author shall review the tour as described in the “Tour preview” state.
        ii. The author would be able to publish the tour after previewing the final stage of the tour.
    e. The author would receive notification of their tour being published.

# Use-cases

## Follow Tour

| | |
|---|---|
| **Use case name** | Follow tour |
| **Primary actor** | User (student/visitor) |
| **Secondary actor** | Tour author |
| **Preconditions** | - The window with all the tours is open<br>- GPS location is available and accessible |
| **Trigger** | User selects a tour of their choice |
| **Guarantee** | User starts and follows their selected tour |

**Main Success Scenario**:

1. User selects a tour they wish to follow
2. Tour preview opens
3. User presses “Start” to begin the tour
4. GPS detects the user’s exact location
5. Tour screen appears
6. User goes to the start object of the tour
7. User chooses to view the annotations of the object they are closest to
8. Annotation window opens
9. User closes the annotation screen
10. User visits the next object in the path
11. The steps 7-10 are optionally repeated

**Alternative/Failure Scenarios:**

1a. There are no available tours
    1a1. An error message is displayed
2a. User goes back to 1. to view other tours
2b. User can view each object in the tour and see the object’s annotations
    2b2. User goes back to the previous tour preview screen
4a. GPS is unavailable
    1a1. An error message is displayed
    1a2. User is advised to check their Location settings on their device
6a. User cancels the tour
    6a1. Tour preview 2. is displayed
7a. User cancels the tour
    7a1. Tour preview 2. is displayed
7b. User does not view the annotations of the object
    7b1. User visits the next object in the path 10.
    7b2. User cancels the tour
10a. User presses “Cancel tour”
    10a1. Tour preview 2. is displayed

## Browse Tours

| | |
|---|---|
| **Use case name** | Browse tours |
| **Primary actor** | User (student/visitor) |
| **Preconditions** | - The welcome screen is open<br>- GPS location is available and accessible |
| **Trigger** | User presses “View tours” |
| **Guarantee** | User browses and views tours available to them |

**Main Success Scenario**:

1. User presses “View Tours” on the welcome screen
2. GPS determines user’s approximate location
3. Tour(s) appear on the screen
4. User selects a tour
5. Tour preview opens
6. User goes back to the tour selection screen in 3.
7. Steps 4-6 are optionally repeated

**Alternative/Failure Scenarios:**

2a. There is no GPS available
    2a1. An error message is displayed
    2a2. User is advised to check device’s location settings
3a. There are no tours available (not due to the failure of GPS)
    3a1. A report is generated and sent to the developers
5a. User displays the objects involved in the tour and their annotations
    5a1. User exits this screen by pressing “Back” and goes back to the tour preview

## Author Tour

| | |
|---|---|
| **Use case name** | User-Tour author (Student Ambassador) |
| **Preconditions** | - User has permissions to author tours<br>- User is logged in and on the author welcome screen<br>- There is working internet connection |
| **Trigger** | User presses “Create new tour” |
| **Guarantee** | User adds a new tour to the tour library |

**Main Success Scenario**:

1. User presses “Add new tour”
2. A new tour form appears on the screen
3. User fills in the name of the tour
4. User fills in the annotation details
5. User presses “Submit”
6. Admissions staff receives the tour preview
7. Admissions staff approves the tour
8. A new tour appears in the tour library

**Alternative/Failure Scenarios:**

3a. A tour with user’s selected name already exists

3a1. An error message is displayed asking user to change the tour name

5a. Submission fails

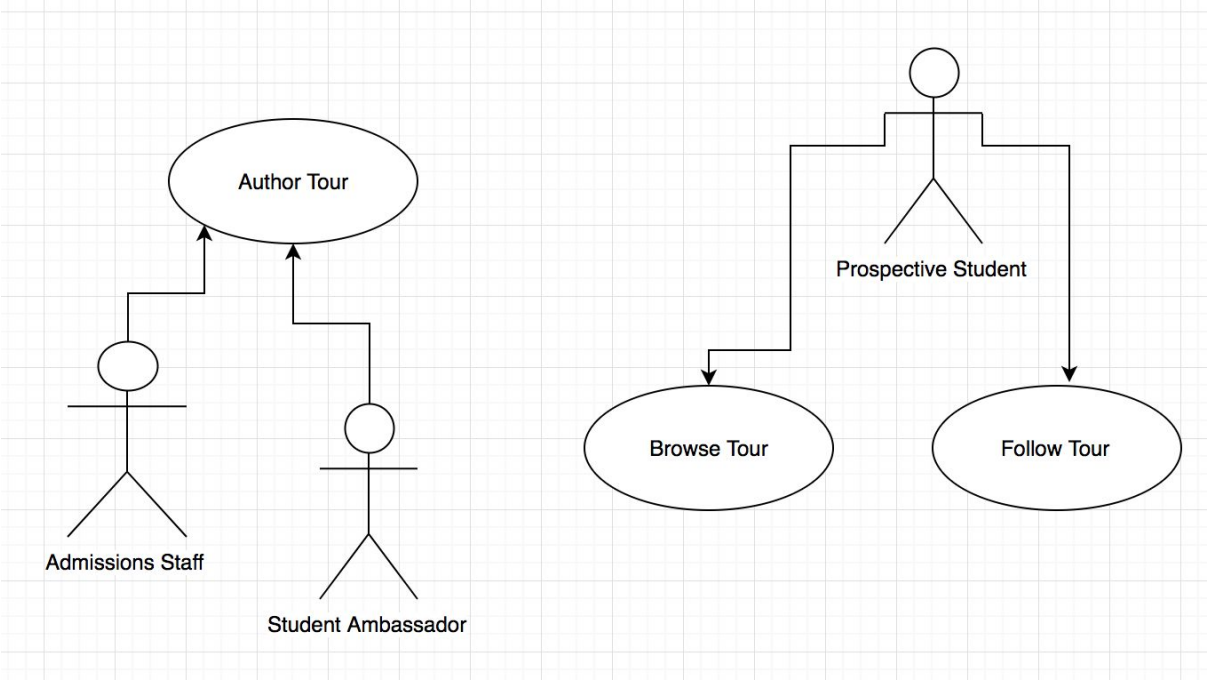
5a1. Error message is displayed

5a2. User is asked to check their internet connection

6a. Admissions staff does not approve the tour

6a1. The new tour does not appear in the library

An overview


Author Tour
Admissions Staff
Student Ambassador
Prospective Student
Browse Tour
Follow Tour

# Non-functional requirements

## Security

1. Access to the tour authoring feature shall be restricted to the admissions team and the student ambassadors.
2. All changes to tours shall be approved by the admissions team.
3. Tours shall only be published by the admissions team.

## Usability and Accessibility

1. The app shall be easy for non-technical users to use.
2. The user interface and user experience should conform to the Material Design guidelines as much as possible.
3. Authors should be able to perform bulk actions on tours.
4. The app shall be accessible from modern mobile devices.
5. The app shall be freely downloadable via the Internet.

## Performance

1. The app should render the list of tours within 500ms.
2. The app shall take no longer than 1500ms to start.
3. Tour data should take less than 750ms to load.
4. Whilst paused, the app shall only access resources if the user is following a tour.
5. The app shall only access location data when the user is following a tour.
6. The app should poll for GPS updates less often whilst:
    a. the app is paused, or
    b. the app is in power saving mode
7. When dealing with a server architecture:
    a. The app shall run efficiently with large numbers of concurrent users (this would be experienced during open days, for example.)
    b. The app shall check for tour updates when:
        i. the app starts, and
        ii. when prompted by the user.
    c. The app's interaction with the Internet shall be configurable
        i. data transfer restrictions can be set for mobile data, Wi-Fi and roaming
        ii. automatic updates can be disabled
        iii. when automatic updates are disabled, the app should notify the user to update once a week

## Reliability

1. The application shall only fail when location data is unavailable.
2. The app shall deal with non-critical errors transparently.

# Ambiguities and subtleties

### Ambiguity: App “paused”

When the app is paused we refer to the user not actively making use of the app. This means the user has locked the screen, or has “minimised” the app.

The user may “minimise” the app to attend to other jobs, such as replying to emails or messages.

### Subtlety: Use of term “admissions team”

Oftentimes it won’t be the admissions team that focuses on outreach and encouraging people to join the university.

Whenever we say “admissions team” we are referring to the team that is trying to encourage prospective students to join the university.

### Ambiguity: Tour authorship and management

Since this document addresses a tour application without going into much depth about the server-side requirements, it’s important to note how changes made by authors are to be shared with students.

If a centralised server is not used to store changes and retrieve tours, authors could package their tours and send them to the app developer for inclusion on the next version of the app.

Alternatively, if a centralised server is used, the tours could be updated on-the-go. In this situation, changes made by the student ambassadors would need to be reviewed and published by the admissions staff.

### Tour types and map integration

The app could overlay tours on a map, and the performance of the app may have a negative impact by this addition.

A user may want to start a tour from a non-starter waypoint, or mid-leg, and this could be supported if authors designed a tour to be circular. This however makes it difficult to refer to previous annotations in future annotations.