

# Case 3: Project Scope Management

## Task 1: Project Scope Statement

### Scope Statement (Version 1)

**Project Title:** Gender Bias AI

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**Project Justification:**

This project aims to develop a face recognition model optimised against gender bias. The motivation behind this project stems from recent findings that show increased misidentification rates in women compared to men in state-of-the-art AI, particularly in the domain of face recognition. This project intends to address this issue by developing a model less susceptible to gender bias, which can then be incorporated into all fields that apply face recognition.

**Project Characteristics and Requirements:**

**1. AI model must perform face recognition**

In scope

- Accept image and video data in most popular formats, including:
  - Image: PNG, JPG, GIF, TIFF, BMP
  - Video: MP4, MOV, WMV, AVI, FLV
- Detect faces of human subjects and identify their gender
- Detect facial features of subjects, particularly:
  - Hair
  - Eyes
  - Nose
  - Mouth
- Minimal disparity in misidentification rate (less than 5%) between male and female subjects

Out of scope

- Identify non-human subjects
- Process image background
- Classify data unrelated to gender, such as:
  - Age
  - Income
  - Nationality

Constraints

- Amazon Web Services must remain continuously operational throughout the project duration for the AI model to run.

Assumptions

- The project team will have a sufficient budget to run this AI model on Amazon Web Services, which is a cloud computing platform.
- The project team will be able to obtain a free online labelled dataset of faces to train the model.

## 2. AI model must be compatible with multiple programming environments

### In scope

- Compatibility with several programming languages, particularly:
  - Python
  - JavaScript
  - C++
- Compatibility with most operating systems, such as:
  - Desktop: Windows, macOS, Linux
  - Mobile: Android, iOS
- Application Programming Interfaces (APIs) for aforementioned programming languages and operating systems

### Out of scope

- Compatibility with other programming languages, such as:
  - C#
  - Ruby
  - Golang

### Constraints

- The external dependencies of the APIs must remain up-to-date with the latest updates of their programming languages. Otherwise, the APIs will lose forward compatibility and become dysfunctional.

### Assumptions

- Developers will use the face recognition model to integrate with existing software.
- The APIs will be maintained and updated at regular intervals by open-source contributors after product release to ensure continuous support and forward compatibility.

## 3. Web platform to host the AI model

### In scope

- Accept images and videos uploaded by users
- Process uploaded image and video data
- Display results
- Validate results
- Host developer documentation

### Out of scope

- User accounts to store user preferences and personal data
- Image and video upload history for each user

### Constraints

- Users of the platform must have Internet access.
- The cloud services to host the web platform must remain continuously operational to ensure the platform remains online.
- The web document standards (HTML, CSS, JavaScript) must continuously support the rendering of the website. Otherwise, the platform will not run at all.

#### Assumptions

- Users will access the platform using popular web browsers, such as:
  - Chrome
  - Edge
  - Firefox
  - Safari

#### **4. Developer documentation**

##### In scope

- User guide on how to navigate the web platform
- Setup guide for the AI model
- Description of all key aspects of the AI model, particularly:
  - Image and video processing
  - Face recognition
  - API function calls
- Neat organisation for ease of navigation

##### Out of scope

- Translations to non-English languages
- Beginner tutorials on learning the programming languages used

##### Constraints

- External documentation for all dependencies must remain available and up-to-date. Otherwise, the documentation for the AI model will no longer be useful and comprehensive without reliable and up-to-date external sources.

##### Assumptions

- Users are able to read and understand English.
- Developers are able to read and understand technical documentation.

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#### **Summary of Project Deliverables:**

##### **Project management-related deliverables:**

1. Business case
2. Scope statement
3. Requirements traceability matrix
4. Risk register
5. Work breakdown structure (WBS)
6. Gantt chart (schedule)
7. Project design report
8. Project progress report
9. Project proposal report
10. Team management report
11. Final project report

**Product-related deliverables:**

1. AI face recognition model
2. Reports on model accuracy
3. APIs for AI model
4. Web platform
5. AI model source code
6. Web platform source code
7. Developer documentation

**Project Success Criteria:**

This project will be considered a success if the following conditions are met:

- The face recognition model and all additional software meet the requirements and characteristics mentioned.
- Each deliverable is produced on schedule, with the final project to be completed by the initial deadline of October 2021.