TASK 1

Gender Age Detection Model

I. INTRODUCTION

The goal of this report is to provide a feature that can identify the age distribution and number of men and women in a meeting space. This function also has restrictions on the minimum number of people needed in the picture and a specific set of guidelines for classifying people's age and gender depending on the colour of their shirts.

II. BACKGROUND

Knowing the demographics of conference attendees can be helpful for a number of reasons. It can guide content customization, diversity programs, and marketing tactics. Nevertheless, gathering this data through traditional means can be time-consuming and invasive.

III. LEARNING OBJECTIVES

- Identify the number of individuals in an image.
- Estimate the gender of individuals.
- Estimate the age of individuals.

IV. ACTIVITIES AND TASKS

- **Data Collection:** Gathering a diverse dataset of images labelled with gender and age.
- **Training and Testing:** Training the model using CNN, testing and validating the data.
- **Business Rule Implementation**: Assign age 23 to individuals wearing white shirts and Classifying individuals wearing black shirts as children.
- **Error Handling**: Implementing error messages for images with fewer than two people.

V. SKILLS AND COMPETETIONS

- Proficiency in Python programming.

- Knowledge about libraries such as OpenCV, MTCNN for face recognition etc.
- Ability to analyse and preprocess image data.

VI. FEEDBACK AND EVIDENCE

- **Accuracy:** Accurately classified genders and ages
- **Precision and Recall:** Measures the ability to correctly identify true positives and avoid false positives/negatives.

VII. CHALLENGES AND SOLUTIONS

- The system can be designed to anonymize individuals in the image, addressing privacy concerns this can be overcomed by Face Blurring.
- Clothing styles affecting the accuracy of the model will be challenging.

VIII. OUTCOMES AND IMPACT

- **Outcome**: Successfully developed a feature that detects the number of males and females, and predicts their age with specific rules for shirt colours.
- **Impact**: Enhanced capability to analyse demographic data in meeting rooms, leading to more personalized and targeted business strategies.

IX. CONCLUSION

By integrating age and gender detection with visual input constraints and special rules, we have created a tool that can provide valuable demographic insights in meeting room settings. With careful implementation and consideration of challenges, this feature can be a valuable tool. The implementation of this feature demonstrates the power of combining machine learning with custom business rules to solve specific problems.