Idea Proposal of the Project

"GENDER AND ETHNICITY AUTHENTICATION"

For course "Advanced Programming"

by Sultanmurat Yeleu

Made by: Aslanbek Mukhambetaliyev,

Daulet Toleugazy,

Ramazan Zainurainov

Group: IT-2204

Astana, 2024

Idea Description:
Facial authentication has become increasingly important for various applications such as identity verification, personalized services, and targeted advertising. Our project aims to develop a facial authentication system capable of accurately classifying a person's gender, and ethnicity based on facial images.

Background Information:
Facial authentication systems have gained popularity in recent years due to advancements in deep learning and computer vision techniques. These systems rely on machine learning algorithms to analyze facial features and make predictions about a person's demographic attributes. However, existing solutions often suffer from limitations such as limited accuracy and inability to handle diverse facial characteristics.

How to Get the Data?
We plan to use publicly available datasets such as the UTK dataset, which contains facial images labeled with gender, and ethnicity. Additionally, we may explore other sources such as government datasets and online repositories to augment our dataset with diverse samples.

Brief Description of Our Solution:
Our solution involves developing a convolutional neural network (CNN) architecture tailored specifically for gender, and ethnicity classification based on facial images. The CNN will be trained on the collected dataset to learn discriminative features and make accurate predictions about the demographic attributes of individuals.

Tech Stack:
Programming Language: Python;
Frameworks: TensorFlow, Keras;
Tools: Google Colab, Jupyter Notebook;
Libraries: NumPy, Pandas, Matplotlib.

Additional Information:
Our project aims to address the challenges associated with facial authentication and provide a robust and accurate solution for age, gender, and ethnicity classification. We will employ state-of-the-art deep learning techniques and carefully evaluate our model's performance to ensure its effectiveness in real-world applications.