Task 2:

In this section, I used DeepFace to predict the age of individuals in the Fairface dataset and measured the accuracy of the predictions. The overall accuracy is 0.2875.

Additionally, with the age prediction result, I analyzed the potential bias of the DeepFace model with respect to gender and race and calculated the standard deviation across race and gender. The results are reported below.

Gender	Female	Male	Standard Deviation
Accuracy	0.2783	0.2957	0.01592

Table 1. Age Prediction Accuracy Across gender

Race	White	Black	East Asian	Indian	Latino_Hispanic	Middle Eastern	Southeast Asian	Standard Deviation
Accuracy	0.3117	0.2718	0.28	0.2796	0.2877	0.3085	0.2678	0.008686

Table 2. Age Prediction Accuracy Across Race

Race	White		Black		East Asian		Indian		Latino_Hispanic		Middle Eastern		Southeast Asian	
Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Accuracy	0.3110	0.3125	0.2665	0.2774	0.2934	0.2664	0.2868	0.2726	0.3051	0.2710	0.3234	0.2777	0.2748	0.2602

Table 3. Age Prediction Accuracy Across Gender and Race

The results show that the model performs better on male faces compared to female faces (Table 1). Additionally, when analyzing the prediction accuracy across different racial groups (Table 2), the white group has the highest accuracy.

When considering the combination of gender and race (Table 3), the white group had the best overall performance. Interestingly, white women slightly outperformed white men and achieved the highest accuracy among all gender-race groups.