Project Case	
COMP7116001 Computer Vision	
Computer Science	**O222-COMP7116-MQ02-00**
Valid on *Odd Semester Year 2021/2022*	**Revision 00**

1. Seluruh kelompok tidak diperkenankan untuk:

   The whole group is not allowed to:

   - Melihat sebagian atau seluruh proyek kelompok lain,

     Seeing a part or the whole project from another groups
   - Menyadur sebagian maupun seluruh proyek dari buku,

     Adapted a part or the whole project from the book
   - Mendownload sebagian maupun seluruh proyek dari internet,

     Downloading a part or the whole project from the internet,
   - Mengerjakan soal yang tidak sesuai dengan tema yang ada di soal proyek,

     Working with another theme which is not in accordance with the existing theme in the matter of the project,
   - Melakukan tindakan kecurangan lainnya,

     Committing other dishonest actions,
   - Secara sengaja maupun tidak sengaja melakukan segala tindakan kelalaian yang menyebabkan hasil karyanya berhasil dicontek oleh orang lain / kelompok lain.

     Accidentally or intentionally conduct any failure action that cause the results of the project was copied by someone else / other groups.

2. Jika kelompok terbukti melakukan tindakan seperti yang dijelaskan butir 1 di atas, maka **nilai kelompok** yang melakukan kecurangan (menyontek maupun dicontek) akan di – **NOL** – kan.

   If the group is proved to the actions described in point 1 above, the score of the group which committed dishonest acts (cheating or being cheated) will be "Zero"

3. Perhatikan jadwal pengumpulan proyek, segala jenis pengumpulan proyek di luar jadwal tidak dilayani.

   Pay attention to the submission schedule for the project, all kinds of submission outside the project schedule will not be accepted

4. Bila Anda tidak membaca peraturan ini, maka Anda dianggap telah membaca dan menyetujuinya

   If you have missed to read these regulations, so you are considered to have read and agreed on it

5. Persentase penilaiaan untuk matakuliah ini adalah sebagai berikut:

   Marking percentage for this subject is described as follows:

Tugas Mandiri *Assignment*	**Proyek** *Project*
40%	60%

6. Software yang digunakan pada matakuliah ini adalah sebagai berikut:

   Software will be used in this subject are described as follows:

Software *Software*
Visual Studio Code Python 3.7 SciPy 1.5.0 OpenCV 3.4.2.16

7. Ekstensi file yang harus disertakan dalam pengumpulan tugas mandiri, proyek dan uap untuk matakuliah ini adalah sebagai berikut:

   File extensions should be included in assignment, project, and final exam collection for this subject are described as follows:

Tugas Mandiri *Assignment*	**Proyek** *Project*
PY	PY

Soal
Case

Top Secret

Top Secret is a new application currently being developed by **CloseAI**. This company focus on developing application with **Artificial Intelligence** concept, especially **Computer Vision**. **Top Secret** needs to add a new computer vision feature to some applications which are already developed. This feature will allow the applications to recognize every user based on **profile image** with a **single face** and determine if the user **verified** or **not**. Therefore, as a programmer of **CloseAI**, you are asked to create that feature using **Python programming language** and **OpenCV Library**.

- **Dataset Description**

  The given dataset contains **training datasets** consist of **7 - 12 profile images of each user** that already uploaded from the applications and **testing images** consisting of **6 random user**'**s profile images**.

- **Get Path List**

  The directories of the **given training dataset** will be stored into a **list** containing the **names of directories**. This list will also be used as the **labels** of the training images.

- **Get Class Id**

  The image from the **training dataset** will be **stored** into a **list** and every class will have a generated **image class id**.

- **Detect Face and Filter**

  Faces inside the **training images** will be **detected** and stored into a **list of images**. The **position** and **size** of the **detected face** will also be stored into a **list of rectangles**. You also need to **filter** the training images if there is **no face, or more than one face detected**.

- **Train**

  The **list** of **face images** which already **detected** will be used to **train** the **face recognizer**.

- **Get Test Image Data**

The **image** from the **test dataset** will be **loaded** and **stored** into a **list of images**.

- **Predict**

  The **list** of **testing images** will be **predicted** to **produce** the **prediction result** based on **trained recognizer**.

- **Get Verification Status**

  The **list** of **prediction results** will be **verified** to **produce** the **verification statuses** based on the **list** of **unverified names. Verification statuses** consist of **prediction results** which each of the results will be labeled as "**Verified**" or "**Unverified**".

- **Draw Prediction Result**

  The **list** of **verification statuses** and **prediction results** will be **drawn** to every single test image.

- **Combine and Show Result**

  A list of **testing images** that have been drawn will be **combined** into a **single image** with the **first row** will be **unverified** user and the **second row** the **verified** user. Then all of it must be **resized** with **250 x 250 px** After being combined, **show** the **final image result**.

- **Unverified User**

  You are asked to **tag the unverified user** with **name** "**Raditya Dika**", "**Anya Geraldine**", and "**Raffi Ahmad**".

Figure 1. Image Final Result

Guidelines:

a. **All** the **steps mentioned in the case** should be **put** in the **corresponding function** in the **template**. **All codes written outside** the **corresponding function** will **not be marked**.

b. Do not **modify** or **erase any codes** in the **template**.

Reference:

- The dataset is obtained from Google Image