|  |  |
| --- | --- |
| **Project Case** |  |
| COMP7116 | COMP7116001 | COMP7116016  Computer Vision |
| **Computer Science** | **O232-COMP7116-FX01-00** |
| ***Valid on*** *Odd Semester Year 2022/2023* | **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.*

1. 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”.*

1. 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.*

1. 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.*

1. Persentase penilaiaan untuk matakuliah ini adalah sebagai berikut:

*Marking percentage for this subject is described as follows:*

|  |  |  |
| --- | --- | --- |
| **Tugas Mandiri**  *Assignment* | **Proyek**  *Project* | **UAP**  *Final Exam* |
| 40% | 60% | - |

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

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

|  |
| --- |
| **Software**  *Software* |
| OpenCV 4.6.0.66  Python 3.7.6  SciKit 0.23.1  Visual Studio Code |

1. 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* | **UAP**  *Final Exam* |
| PY | PY | - |

## Soal

*Case*

**Airport Face Scanner**

Nowadays, the world of entertainment is often decorated with controversial issues. To protect certain actors or actresses, the airport plans to detain them before they travel to an area. This application is able to recognize whether a people is in the wanted list or not. Therefore, you as a programmer of **security division**, are asked to create that feature using **Python programming language** and **OpenCv Library**.

* **Dataset Description**

The given dataset contains **training dataset** consist of **7 - 19 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 **train 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 **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 Wanted Status**

The **list** of **prediction** **results** will be **verified** to **produce** the **wanted statuses** based on the **list** of **wanted names. wanted statuses** consist of **prediction results** which each of the results will be labeled as “**Safe**” or “**Wanted**”.

* **Draw Prediction Result**

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

* **Combine and Show Result**

**List** of **testing images** that has been drawn will be **combined** into a **single image** with the **first row** will be **wanted** user and the **second** **row** the **safe** user. Each Image must be **resized** with size **255 x 330 px**. After being combined, **show** the **final image result**.

* **Wanted User**

The program will **tag** **users** based on wanted list. You are asked to **tag** user with the **name** “**Jackie Chan**”, “**Cho Yi-Hyun**”, and “**Kim Se-jeong**” as wanted users.

A collage of people

Description automatically generated with low confidence

**Figure 1 Image Final Result**

**Guidelines:**

1. **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**.
2. Do not **modify** or **erase** **any** **codes** in the **template**.

**Reference:**

* + - The dataset is obtained from Google Image