Instruction about how to use the code provided in IMS project

1. Set up the environment of Virtual Machine
   The system needs to work in the Ubuntu, Thus, make sure the working environment is Ubuntu.
   And make sure the all the following program environment have been set.
   a. Python 3
   b. FFmpeg
   c. Numpy
   d. Pandas
   e. Mualibplot
2. Place the project file into the system
3. Open the terminal
4. Use 'cd' command to move into the file where the code and the original video file save.

```
ython@ubuntu:~$ cd project
ython@ubuntu:~/project$
```

5. Use command 'python ./IMS.py' to start the code.

```
python@ubuntu:~/project$ python ./IMS.py
```

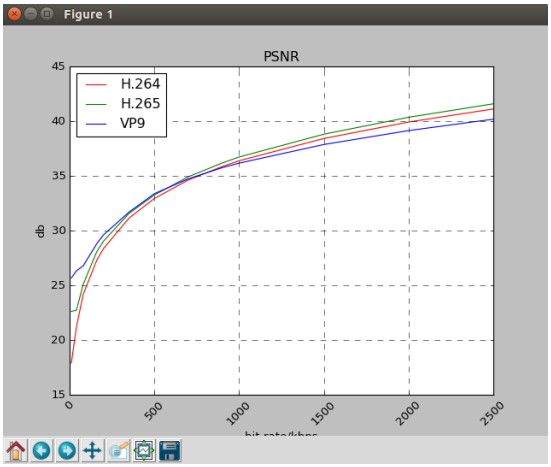
6. Then, input the name of the video you want to test. The test video must in the format of CIF. There are also need the yuv file of the original video, and y4m and yuv file need be to store in the same file.

```
Please input the video name:bus
```

   No need to input the suffix of the video.
7. The program is working now, the process will be displayed in the terminal.

```
encoding videos
libx264 10kbps finished and complie time (sec): 0.001435995101928711
libx264 40kbps finished and complie time (sec): 0.03473544120788574
libx264 80kbps finished and complie time (sec): 0.0010325908660888672
libx264 160kbps finished and complie time (sec): 0.0010151863098144531
```

8. The results will be generated



9. If you want to test anther video, all the file generated during the program need to be deleted, only left the original file in your test file