**How to run Source Code**

**Steps to run source code:**

1. Download the source code zip file
2. Unzip the file at temp location
3. Download the UCF dataset from [CRCV | Center for Research in Computer Vision at the University of Central Florida (ucf.edu)](https://www.crcv.ucf.edu/data/UCF101.php)
4. Zip will have a test\_BSvdo\_list.xlsx file as well which contains the format for providing a list of test videos which needs to be provided by the client and will be excluded from training and validation. The list can be populated as per requirement and it contains sample data for reference
5. Zip contains many files but the script files are as below :
   1. **PCAMZC321\_Group5\_VIDEOANALYTICS\_PreProcessing\_Step-0**
   2. **PCAMZC321\_Group5\_VIDEOANALYTICS\_** **PreProcessing\_Blur\_duplicate\_Step\_0\_1**
   3. **PCAMZC321\_Group5\_VIDEOANALYTICS\_VGG16SequentialModelTraining\_Step-1**
   4. **PCAMZC321\_Group5\_VIDEOANALYTICS\_VGG16SequentialModelOutputVideoCreation\_Step-2**
   5. **PCAMZC321\_Group5\_VIDEOANALYTICS\_CNNModelandVideoCreation\_Step-3**
   6. **PCAMZC321\_Group5\_VIDEOANALYTICS\_LSTMModelandVideoCreation\_Step-4**

6. Root Folder structure(Already present in zip file can be copy pasted as required) needs to be created as per the following :

1. For running step 0 , step 1 and step 2
   1. C:\1-GG\CAP4\EventDetection\1-ExampleSetting is the root folder which needs to be created
   2. Paste Videos for actions from the UCF dataset in their respective folders with folder name as the required action . For Ex- Place all videos depicting basketball in a folder named basketball
   3. Create a folder named “Client file” to keep the updated test\_BSvdo\_list.xlsx file
   4. For step 2 a video file to test the model needs to be provided , paste the same in the root folder
2. For running step 3
   1. C:\1-GG\CAP4\EventDetection\Dataset is the root folder which needs to be created
   2. Create the following folders under root with the following names
      1. CNN\_Apply\_vdo
         1. Apply\_vdo (Will contain the video which can be used for testing)
         2. OutPut\_vdo (script will create the video with tagged actions to test the model)
      2. SavedModel (The created model will be stored here)
   3. VDO
      1. Paste Videos for actions from the UCF dataset in their respective folders with folder name as the required action . For Ex- Place all videos depicting basketball in a folder named basketball
3. For running step 4
   1. C:\1-GG\CAP4\EventDetection\Dataset-LSTM is the root folder which needs to be created
   2. Create the following folders under root with the following names
      1. CNNLSTM\_Apply\_vdo
         1. Apply\_vdo (Will contain the video which can be used for testing)
         2. OutPut\_vdo (script will create the video with tagged actions to test the model)
      2. SavedModel (The created model will be stored here)
   3. VDO
      1. Paste Videos for actions from the UCF dataset in their respective folders with folder name as the required action . For Ex- Place all videos depicting basketball in a folder named basketball
4. The description of the script files is as below

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| S.No. | File Name | Significance | Input | Output |
|  | PCAMZC321\_Group5\_VIDEOANALYTICS\_PreProcessing\_Step-0 | 1. Read input data , pre process and extract frames for step 1 & 2. 2. **Creates** intermediate files for reference | Folder structure as described in sub point 1 in main point no 6 above | CSV files with train and test references , frames extracted from videos and stored stored inside “OutputFiles” folder which will be automatically created under the root folder |
|  | PCAMZC321\_Group5\_VIDEOANALYTICS\_ PreProcessing\_Blur\_duplicate\_Step\_0\_1 | 1. Detection of blur and duplicate frames | Frames created from video files from the output of step 0 | NA – Only detection and printing will be done |
| 3. | PCAMZC321\_Group5\_VIDEOANALYTICS\_VGG16SequentialModelTraining\_Step-1 | 1. **Creates** the VGG 16 and sequential model | Folder structure as described in sub point 1 in main point no 6 above | Model file will be created and stored inside “OutputFiles” folder which will be automatically created under the root folder |
| 4. | PCAMZC321\_Group5\_VIDEOANALYTICS\_VGG16SequentialModelOutputVideoCreation\_Step-2 | 1. **Reads** the model file and the input video file created in step 1 2. Tests the video file on the model and creates the output video file with tagged actions | Model file present in OutputFiles folder and input video file kept in the root folder | Processes video with tagged actions |

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| 5. | PCAMZC321\_Group5\_VIDEOANALYTICS\_CNNModelandVideoCreation\_Step-3 | 1. Create video frames for CNN model 2. Create CNN model with the frames 3. Store the final model 4. Read the input test video 5. Create the processed output video | Folder structure with files as described in sub point no 2 in main point no 6 | Evaluation report ,CNN model file and final processed video stored in the folder structure as described in sub point no 2 in main point no 6 |
| 6. | PCAMZC321\_Group5\_VIDEOANALYTICS\_LSTMModelandVideoCreation\_Step-4 | 1. Create video frames for CNN+LSTM model 2. Create CNN+LSTM model with the frames 3. Store the final model 4. Read the input test video 5. Create the processed output video | Folder structure with files as described in sub point no 3 in main point no 6 | Evaluation report ,CNN+LSTM model file and final processed video stored in the folder structure as described in sub point no 3 in main point no 6 |