1. Extracting APKs
   1. Open folder ‘Modules/APK\_Extraction’.
   2. Copy APKs to be extracted to the folder ‘APKs\_to\_be\_extracted’.
   3. Open terminal (in the folder ‘APK\_Extraction’)
      1. Run in Terminal
         1. bash Extract\_XML\_from\_APK
   4. New folder ‘Extracted\_XML\_Files\_of\_APKs’ will contain AndroidManifest.xml files of the APKs.
2. Extracting Permissions from AndroidManifest.xml files
   1. Open folder ‘Modules/XML\_to\_CSV’.
   2. Copy XML files to folders:
      1. benign
      2. Malware
   3. Run Python file ‘XML\_to\_CSV-Converter.py’’
   4. 4 CSV files will be generated:
      1. Benign-permissions
      2. Benign-permissions\_and\_receiver
      3. Malware-permissions
      4. Malware-permissions\_and\_receiver  
         1. Permission   
            Only contains permissions requested by the APK
         2. Permissions\_and\_receiver  
            Contain permissions and broadcast receiving intents.
3. Generating CSV for ML
   1. Open MS Excel file ‘All\_Permissions.xlsx’.
   2. Copy contents of each file to the corresponding sheet in this Excel file.
      1. Permissions\_only
      2. Permissions\_and\_receiver
   3. Ensure to mark the 1st column cell value as ‘benign’ or ‘malware’.
   4. Save Excel file.   
      * 1. EDIT GREEN Cells only.
   5. Save the 2 sheets as CSV with following names:
      1. Permissions\_only.csv
      2. Permissions\_and\_receiver.csv  
         1. Close main Excel after saving 1 CSV file.
4. Remove empty rows at end of CSV files.  
   Each CSV file has formulas to hold 1500 APK entries/rows.
5. CSV Format Issue  
   This is done because ‘Permissions\_and\_receiver.csv’ shows an error in formatting when training the model.
   1. Take a copy of ‘Permissions\_and\_receiver.csv’.
      1. Rename copy as ‘Permissions\_and\_receiver-Original.csv’.
   2. Open ‘Permissions-only.csv’.
      1. CTRL + A.
   3. Open ‘Permissions\_and\_receiver.csv’
      1. CTRL + A
      2. DEL
      3. Paste on Cell A1 (copied items from Permissions\_only.csv).
   4. Copy the first 3 columns from ‘Permissions\_and\_receiver-Original.csv’.
      1. Paste on Cell A1 of ‘Permissions\_and\_receiver.csv’
   5. Save the files.
   6. Ensure files are saved in the folder ‘resources’

1. Making Prediction  
   Run Python file ‘Android\_Malware.py’
   1. It has 4 methods:
      1. Training\_models\_initialize  
          Specify ML training learning models here.
      2. Get\_prediction\_for\_training\_data\_after\_training
         1. Returns a matrix with accuracy score based on training data.
      3. Get\_prediction\_for\_input\_after\_training
         1. Returns prediction for input.