```
#carregar os arquivos de Manifesto. Deve ser criada a pasta manifest para armazenar tais arqu
from google.colab import files
uploaded =files.upload()
```

Escolher arquivos AndroidManif…software.xml

- **AndroidManifest_wordwebsoftware.xml**(text/xml) - 10684 bytes, last modified: 18/02/2021 - 100% done

Saving AndroidManifest_wordwebsoftware.xml to AndroidManifest_wordwebsoftware.xml

```
import os
from xml.dom import minidom
from os import walk
from functools import reduce

#leitura dos arquivos manifesto (XML)
def read_permissions(manifest):
    permissions = []
    xmldoc = minidom.parse(manifest)
    itemlist = xmldoc.getElementsByTagName('uses-permission')
    for s in itemlist:
        if s.attributes['android:name']:
            permission = s.attributes['android:name'].value.split(".")
            permission_name = permission[-1]
            if permission_name.isupper():
                permissions.append(permission_name)
            else:
                # tratando casos especiais. EX: com.amazon.dcp.sso.permission.AmazonAccountPr
                permissions.append(permission[-2] + "." + permission_name)
    return permissions

#leitura do diretorio
def read_manifests(dir):
    apps = {}
    _, _, filenames = next(walk(dir))
    for file in filenames:
        manifest = os.path.join(dir, file)
        permissions = read_permissions(manifest)
        app_name = file.replace("AndroidManifest_", "")
        app_name = app_name.replace(".xml", "")
        apps[app_name] = permissions
    return apps


#identificação das permissões existentes em cada manifesto.
def get_todas(app, apps):
    permissoes_app = set(apps[app])
    return permissoes_app

#identificação das permissões existentes em comum em todos os manifestos do diretório.
def get_intersection(apps):
```

```
    def get_intersection(apps):
        intersection = set()
        aux = []
        for app in apps:
            aux.append(apps[app])
        return list(reduce(set.intersection, [set(item) for item in aux]))

    #identificação das permissões exclusivas de cada manifestos do diretório.
    def get_difference(app, apps):
        permissoes_app = set(apps[app])
        permissoes_outros_apps = []
        for tmp in apps:
            if app != tmp:
                permissoes_outros_apps.append(apps[tmp])
        return permissoes_app.difference(*permissoes_outros_apps)



    # EXECUTAR
    if __name__ == "__main__":
        dir = os.path.join(os.path.abspath(os.getcwd()), "manifest")
        apps = read_manifests(dir)

        print("==================Permissões por APK: ==================")
        for app in apps:
            todas = get_todas(app, apps)
            print(app, "=", todas)

        print("\n\n==================Permissões únicas por APK ==================: ")
        for app in apps:
            diff = get_difference(app, apps)
            print(app, "=", diff)

        print("\n\n==================Permissões comuns das APKs: ================== \n", get_ir
```

```
 ==================Permissões por APK: ==================
 coursera = {'WRITE_SYNC_SETTINGS', 'FOREGROUND_SERVICE', 'RECEIVE', 'GET_ACCOUNTS', 'AC
 lego_duplo = {'CHANGE_WIFI_MULTICAST_STATE', 'ACCESS_WIFI_STATE', 'WRITE_EXTERNAL_STORA
 samsung_kidsplay = {'BIND_GET_INSTALL_REFERRER_SERVICE', 'WRITE_EXTERNAL_STORAGE', 'INS
 duolingo = {'BIND_GET_INSTALL_REFERRER_SERVICE', 'WRITE_EXTERNAL_STORAGE', 'RECORD_AUDI
 lego_bricksmore = {'INTERNET'}
 audible = {'BIND_GET_INSTALL_REFERRER_SERVICE', 'WRITE_EXTERNAL_STORAGE', 'USE_DEVICE_C
 b4ufly = {'RECEIVE', 'ACCESS_WIFI_STATE', 'BIND_GET_INSTALL_REFERRER_SERVICE', 'ACCESS_
 mmapps_mirror = {'RECEIVE', 'BIND_GET_INSTALL_REFERRER_SERVICE', 'BILLING', 'WRITE_EXTE
 wordwebsoftware = {'WAKE_LOCK', 'ACCESS_NETWORK_STATE', 'CHECK_LICENSE', 'INTERNET'}
 starbucks = {'RECEIVE', 'ACCESS_COARSE_LOCATION', 'USE_FINGERPRINT', 'ACCESS_WIFI_STATE
 spatifo_dublo = {'ACCESS_NETWORK_STATE', 'INTERNET'}


 ==================Permissões únicas por APK ==================:
```

```
coursera = {'WRITE_SYNC_SETTINGS', 'WRITE_CALENDAR', 'READ_CALENDAR', 'READ_SYNC_STATS'
lego_duplo = set()
samsung_kidsplay = {'INSTALL_PACKAGES', 'UPDATE_APP_OPS_STATS', 'STATUS_BAR', 'FORCE_ST
duolingo = {'UPDATE_COUNT', 'UPDATE_SHORTCUT', 'CHANGE_BADGE', 'PROVIDER_INSERT_BADGE',
lego_bricksmore = set()
audible = {'DYN_CONFIG_VALUES_UPDATED', 'account.changed', 'USE_DEVICE_CREDENTIALS', 'C
b4ufly = set()
mmapps_mirror = set()
wordwebsoftware = set()
starbucks = {'ACCESS_COARSE_LOCATION', 'ACCESS_PERMISSION', 'USE_FINGERPRINT', 'USE_BIO
spatifo_dublo = set()


==================Permissões comuns das APKs: ==================
 ['INTERNET']
```