ANALISIS DE COMPLEJIDADES

INTEGRANTE 1: Santiago Rodriguez Cruz- s.rodriguez52@uniandes.edu.co 202013371

INTEGRANTE 2:Juan Pablo Tatis Goenaga- j.tatis@uniandes.edu.co 202022217

Análisis de complejidad del requerimiento 1

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```
def cmpVideosByViews(video1, video2):
 x=None
 if (float(video1['views']) < float(video2['views'])):
  x=True
  return x
 else:
  x=False
  return x
```

```
def sortVideos(catalog, size,checker):
    sorted_list=[]
    sub_list = lt.subList(catalog['videos'], 0, size)
    sub_list = sub_list.copy()
    if checker == 2:
     sorted_list = sa.sort(sub_list, cmpVideosByViews)
    else:
     sorted_list = sa.sort(sub_list, cmpVideosByLikes)

    return  sorted_list
```

Ordenamiento=> O(nlogn) (shellsort)

Filtración de datos->O(n)

```
for i in range(0,len(result["elements"])):
    if result["elements"][i]["country"] == pais and result["elements"][i]["category_id"] == categoriaa:
        print(result["elements"][i]["trending_date"],result["elements"][i]["title"],result["elements"][i]["channel_title"],result
```

Requerimiento 2

```
def masDias(catalog,pais):
    used=[]
    counted=[]
    videostitulos=[]
    for i in range(0,lt.size(catalog["videos"])):
     if catalog["videos"]["elements"][i]["country"] == pais:

                videostitulos.append(catalog["videos"]["elements"][i]["title"])

    for i in videostitulos:
     if i not in used:
        used.append(i)
        trendingdays=videostitulos.count(i)
        counted.append(trendingdays)
    mastrending=max(counted)
    alah=counted.index(mastrending)
    correspondent=used[alah]
    for i in range(0,lt.size(catalog["videos"])):
        if catalog["videos"]["elements"][i]["title"] == correspondent:
            titulocanal=catalog["videos"]["elements"][i]["channel_title"]
    return correspondent,mastrending,titulocanal,pais
```

Complejidad =O(3N)=> O(N)

Requerimiento 3

```python
def vidTendenciaCateg(catalog, categ):
    #print(catalog['categorias'])
    lista_trend = {}
    lista_dias = []
    categ_id = hallarID(catalog, categ)
    info_video = []
    for x in catalog["videos"]["elements"]:
        if x["category_id"] == categ_id:
            if x["video_id"] in lista_trend and x["video_id"] != "#NAME?":
                lista_trend[x["video_id"]] += 1
            else:
                lista_trend[x["video_id"]] = 1
    for x in lista_trend:
        lista_dias.append(lista_trend[x])
    for x in lista_trend:
        if lista_trend[x] == max(lista_dias):
            vid_id = x
    for x in catalog["videos"]["elements"]:
        if x["video_id"] == vid_id and x["title"] not in info_video:
            info_video.append(x["title"])
            info_video.append(x["channel_title"])
            info_video.append(x["category_id"])
            info_video.append(max(lista_dias))
    return info_video
```

Complejidad= O(4N)= O(N)

Requerimiento 4

Mismo caso que Requerimiento 1(shellsort y función de comparación casi idéntica)

```
def cmpVideosByLikes(video1, video2):
 x=None
 if (int(video1['likes']) < int(video2['likes'])):
  x=True
  return x
 else:
  x=False
  return x
```