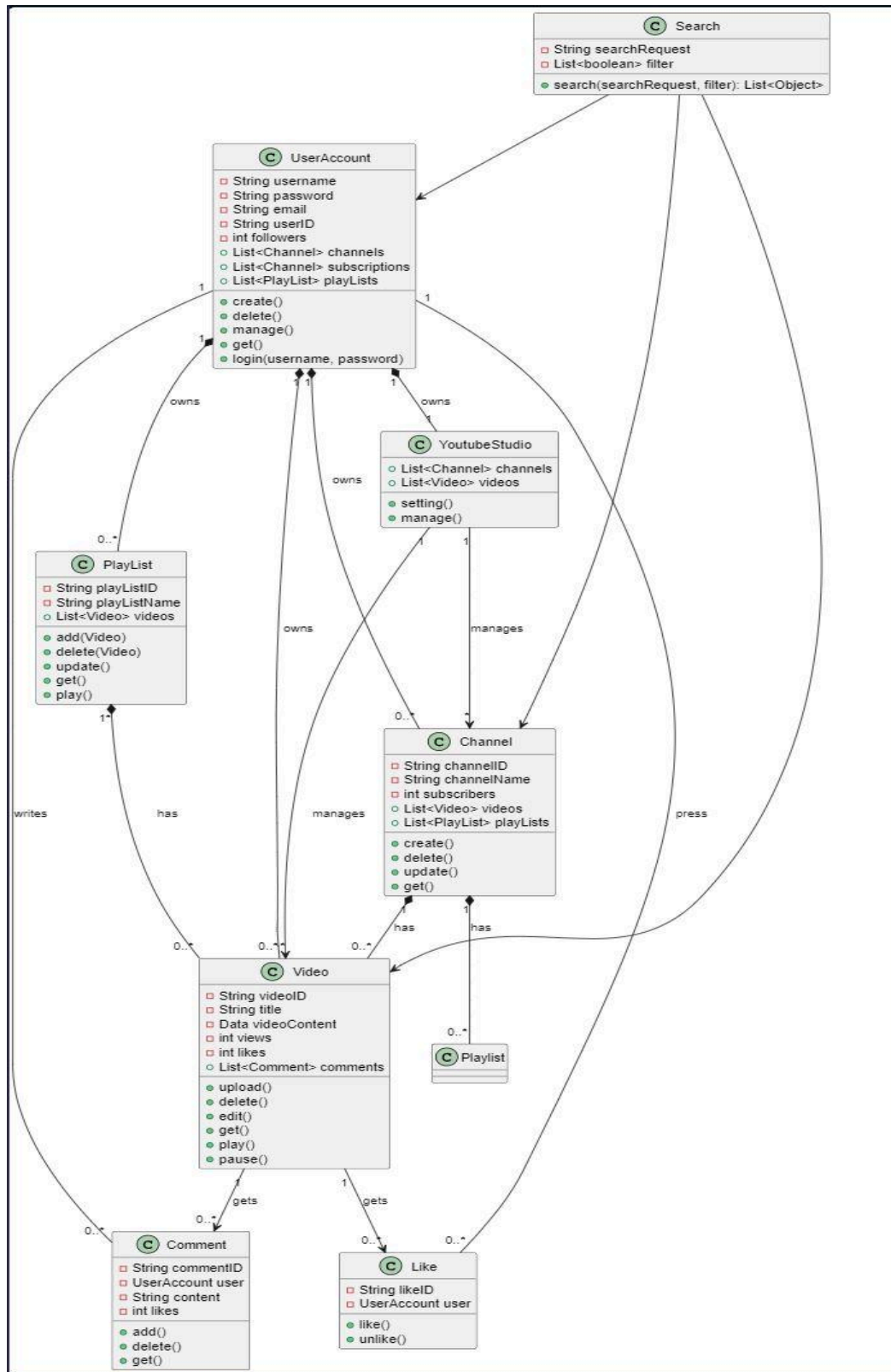


CS 5800 Quiz 3

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Github repo: <https://github.com/adayang0046/5800-Quiz-3.git>

## Youtube Class Diagram:



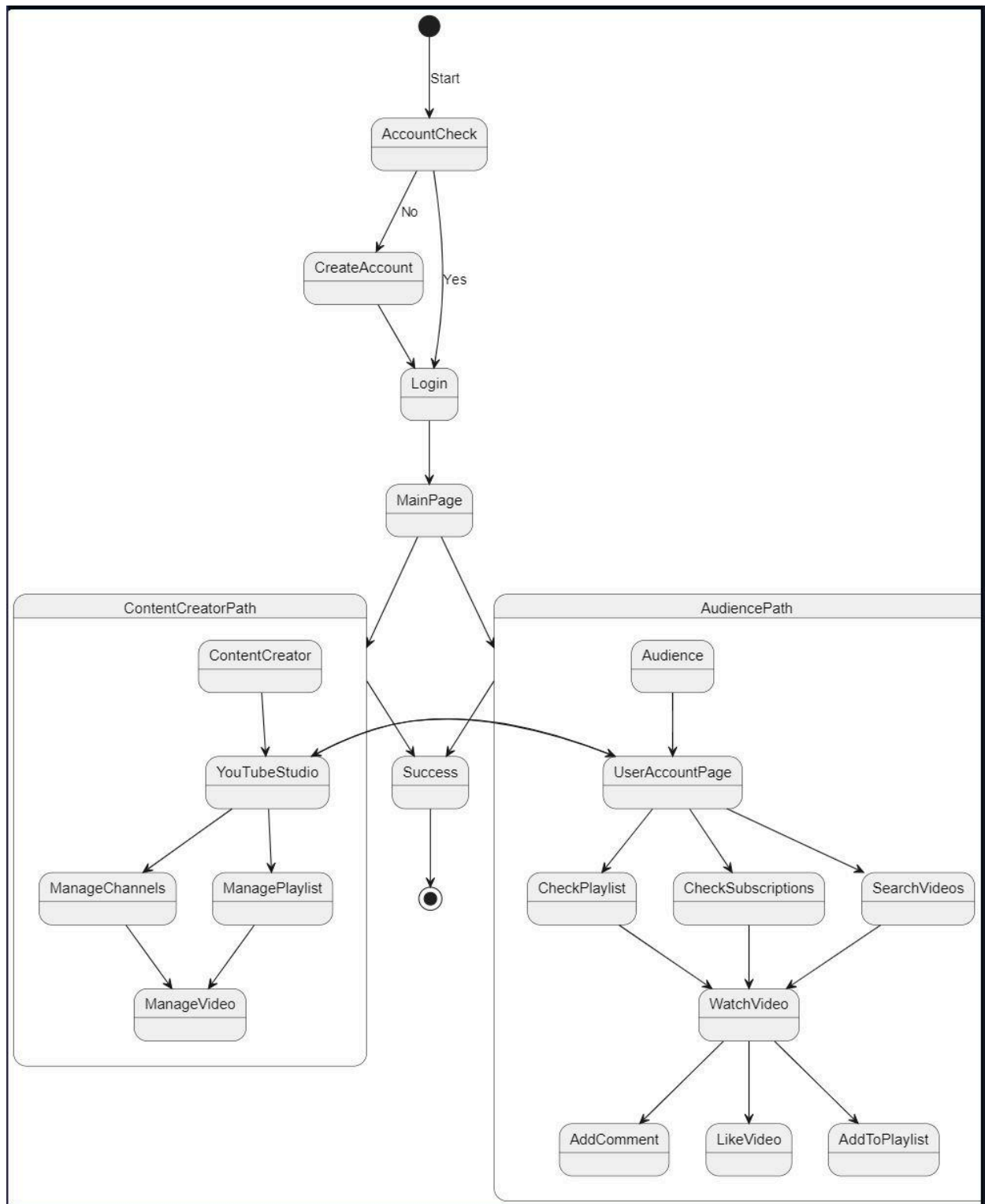
## Youtube Class Diagram Code:

```
1  @startuml Youtube Class Diagram
2
3  class UserAccount {
4      - String username
5      - String password
6      - String email
7      - String userID
8      - int followers
9      + create()
10     + delete()
11     + manage()
12     + get()
13     + List<Channel> channels
14     + List<Channel> subscriptions
15     + List<Playlist> playLists
16     + login(username, password)
17 }
18
19 class Channel {
20     - String channelID
21     - String channelName
22     - int subscribers
23     + create()
24     + delete()
25     + update()
26     + get()
27     + List<Video> videos
28     + List<PlayList> playLists
29 }
30
31 class Video {
32     - String videoID
33     - String title
34     - Data videoContent
35     - int views
36     - int likes
37     + upload()
38     + delete()
39     + edit()
40     + get()
41     + List<Comment> comments
42     + play()
43     + pause()
44 }
```

```
47 class Comment {
48     - String commentID
49     - UserAccount user
50     - String content
51     - int likes
52     + add()
53     + delete()
54     + get()
55 }
56
57 class Like {
58     - String likeID
59     - UserAccount user
60     + like()
61     + unlike()
62 }
63
64 class Playlist {
65     - String playlistID
66     - String playlistName
67     + List<Video> videos
68     + add(Video)
69     + delete(Video)
70     + update()
71     + get()
72     + play()
73 }
74
75 class YoutubeStudio {
76     + List<Channel> channels
77     + List<Video> videos
78     + setting()
79     + manage()
80 }
81
82 class Search {
83     - String searchRequest
84     - List<boolean> filter
85     + search(searchRequest, filter): List<Object>
86 }
87
88
89 }
```

```
93 UserAccount "1" *-- "0..*" Channel : owns
94 UserAccount "1" *-- "0..*" Playlist : owns
95 UserAccount "1" *-- "0..*" Video : owns
96 UserAccount "1" *-- "1" YoutubeStudio : owns
97 UserAccount "1" -- "0..*" Comment : writes
98 UserAccount "1" -- "0..*" Like : press
99
100 Channel "1" *-- "0..*" Video: has
101 Channel "1" *-- "0..*" Playlist: has
102
103 Playlist "1" *-- "0..*" Video: has
104
105 Video "1" --> "0..*" Comment : gets
106 Video "1" --> "0..*" Like : gets
107
108
109
110 YoutubeStudio "1" --> "*" Channel : manages
111 YoutubeStudio "1" --> "*" Video : manages
112
113
114 Search --> UserAccount
115 Search --> Channel
116 Search --> Video
117
118 @enduml
```

Youtube Activity Diagram:



## Activity Diagram Code:

```
@startuml Youtube Activity Diagram
[*] --> AccountCheck : Start

AccountCheck --> CreateAccount: No
AccountCheck --> Login: Yes
CreateAccount --> Login
Login --> MainPage
MainPage --> ContentCreatorPath
MainPage --> AudiencePath

state ContentCreatorPath {
    ContentCreator --> YouTubeStudio
    YouTubeStudio --> ManageChannels
    YouTubeStudio --> ManagePlaylist
    ManageChannels --> ManageVideo
    ManagePlaylist --> ManageVideo
}
```

```
state AudiencePath {
    Audience --> UserAccountPage
    UserAccountPage --> CheckPlaylist
    UserAccountPage --> CheckSubscriptions
    UserAccountPage --> SearchVideos

    CheckPlaylist --> WatchVideo
    CheckSubscriptions --> WatchVideo
    SearchVideos --> WatchVideo
    WatchVideo --> AddComment
    WatchVideo --> LikeVideo
    WatchVideo --> AddToPlaylist
}

state ManageVideo {
}
YouTubeStudio --> UserAccountPage
UserAccountPage --> YouTubeStudio

ContentCreatorPath --> Success
AudiencePath --> Success
Success --> [*]
```

## Ideations

Create a UML Class Diagram and UML Activity Diagram based on the basic functions for youtube. This is a group assignment.

### Main functions of Youtube

- User management: accounts with channel
- Video management: uploading and modifying videos in channel
- Search: search videos by key words
- Like & comments & subscribe
- Video: pause, play, fast-forward, etc,
- Playlist queue

### Main functions of Youtube

- User management: **accounts** with **channel**
- Video management: uploading and modifying **videos** in channel
- **Search**: search videos by key words
- **Like & comments & subscribe**
- Video: pause, play, fast-forward, etc,
- **Playlist queue**

### Main classes:

- User Account: manage by user name and password  
Class UserAccount {
  - String username
  - String password
  - String email
  - String userID
  - int followers
  - Channels: List<Channel>
  - Subscriptions: List<Channel>
  - PlayLists: list<PlayList>
  - Other attributes
  - + login(username, password)}
- YoutubeStudio: a class to help manage videos and channels  
Class YoutubeStudio {
  - List<Channel> channels
  - List<Video> videos
  - Other data
  - + setting()}

- Channel: manage username and channel id

```
Class Channel {  
    - String channelID  
    - String channelName  
    - int subscribers  
    - videos: List<Video>  
    + playLists: List<Playlists>  
}
```

- Video: manage by video id

```
Class Video {  
    - String videoID  
    - String title  
    - Data videoContent  
    - int views  
    - int likes  
    - comments: List<Comment>  
    + play()  
    + pause()  
}
```

- Comment: stores comment attributes

```
Class Comment {  
    - StringcommentID  
    - UserAccount user  
    - String content  
    - int likes  
    + delete()  
}
```

- Like: stores like attributes

```
Class Comment {  
    - String likeID  
    - UserAccount user  
    + unlike()  
}
```

- Search: search by id or title or filter

```
Class Search {  
    - String searchRequest  
    - filter: a list of boolean  
    + List<Video or Channel or UserAccount> search(searchRequest, filter): different  
      types of searches
```

- Playlist:

```
Class PlayList {
```

- String playListID
  - String playListName
  - List<Video> videos
  - + add(Video)
  - + delete(Video)
  - + play(): play the list videos
- }
- UserManager
    - Class UserManager {
      - + createUser(String userID, String password, String email)
      - + login(String userID, String password)
      - + updateAccount(UserAccount user, task)
      - + deleteAccount(UserAccount user)
      - + otherTasks()
- }
- ChannelManager
    - Class ChannelManager {
      - + createChannel()
      - + updateChannel()
      - + deleteChannel()
      - + getVideo()
      - + getPlayList()
      - + getData()
- }
- Video Manager
    - Class VideoManager {
      - + createVideo()
      - + updateVideo()
      - + deleteVideo()
      - + play()
      - + otherActions()
      - + getPlayList()
      - + getData()
- }
- PlayList Manager
    - Class VPlayListManager {
      - + create()
      - + update()
      - + delete()
      - + otherActions()
      - + getVideos()



```

        +   getData()
    }

-   Engagement Manager
    Class EngagementManager {
        +   like()
        +   unlike()
        +   addComment()
        +   deleteComment()
    }

```

\*\*\*\* Refined: deleted all managers \*\*\*\*

Current classes:

- UserAccount
- Channel
- Video
- Comment
- Like
- PlayList
- YoutubeStudio
- Search

Relationships

Composition:

A user account may have: 1 youtube studio, multiple channels, multiple playlists, multiple videos, multiple likes.

A youtube studio may have: multiple channels and videos

A channel may have: multiple videos and playlists

A playlist may have: multiple videos

A video may have: many likes and comments

Association:

Search: may used by user account, channel

A user can create many likes and comments

Activity:

User - create account - content creator or audience? ...