Tesina
Human Computer Interaction

CiakTime

Authors:
Mauro Ficorella 1941639
Martina Turbessi 1944497
Valentina Sisti 1952657

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1 Introduction

The idea behind CiakTime comes from the fact that nowadays there are a lot of movies out both in theatres and in streaming platforms, so that cinema lovers can satisfy their needs to stay updated with the latest movies and keep track of them. Also they may want to know on which streaming platforms they can found the movies. Finally they could have the necessity to interact with other cinema lovers about their favourite movies or share their opinion about the movie with the community through reviews.

For these reasons, our app offers a lot of functionalities. The user has the possibility to keep track of already watched movies, movies to watch and favourite movies; moreover he can search for movies by title, also filtering results, search for actors and movie directors, look for upcoming movies and popular movies and actors. Regarding the movies, he can read information about plot, cast, year of release, duration, genre, movie director and streaming platform on which the movie is available; in addition, he can review and rate movies, comment and like reviews made by other users. Finally, regarding movie directors and actors, the user can read their biography and take a look to their filmography.

In order to involve as much users as possible, we decided to make our app available for both iOS and Android devices.

2 Requirement analysis

2.1 Competitor analysis

We found two main competitors for our application: IMDb and Cinemaniac.

IMDb

IMDb is the world's most popular and authoritative source for movie, TV, and celebrity information. This app has a huge fanbase and a limitless cinema database. On this app the user can watch trailers, get showtimes, and buy tickets for upcoming films. He can rate and review shows he has seen and track what he wants to watch using his Watchlist, and he can also get suggestions regarding movies based on it.
However, we have identified few weaknesses, such as the impossibility to exchange opinions between users, to keep track of already watched movies and to save favourite movies in a list; it is also not very intuitive to retrieve movies specific information due to the high number of functionality offered by the application.

Cinemaniac

Cinemaniac is an app on which the user can search for a movie and add it to the "Movies to watch", "Watched movies" or favourite list. He can see all the relevant details for any movie and he can leave his own personal grade. The user can find suggestions on the most popular and top rated movies. Moreover, he can find a specific list relative to currently projected movies and upcoming titles.
Also here we have identified some weaknesses, like the fact that the interface is not so user friendly, there is no user interaction, there are no information about streaming platforms; moreover the search about movies is not so intuitive and there are in-app purchases required to remove advertisements and unlock some functionalities.

In the following table we summarize the comparison between our app and the competitors:

	CiakTime	IMDb	Cinemaniac
User profile	✓	✓	✗
Search	✓	✓	✓
Movie info	✓	✓	✓
Streaming platform	✓	✓	✗
Upcoming movies	✓	✓	✓
Watch history	✓	✗	✓
Watch list	✓	✓	✓
Favourite movies	✓	✗	✓
Review movies	✓	✓	✓
Rate movies	✓	✓	✓
Comment other reviews	✓	✗	✗
Like other reviews	✓	✓	✗
No ads	✓	✓	✗

2.2 User analysis

In this section we want to analyze the possible users for our application. In particular we describe the User Profile, which is a detailed description of our users' attributes, the Personas, which are fictional individuals created to describe the typical user based on the user profile and the Scenarios, which are stories that describe how a particular persona completes a task or behaves in a given situation.

2.2.1 User Profile

Age	18-50 years
Gender	male/female
Profession	Any
Education	Any
Location	Any
Tecnology	Basic smartphone experience
Passions	Cinema, movies

2.2.2 Persona 1 - Vittoria

Age: 25 years-old
Gender: Female
Profession: Student
Education: University student
Location: Rome, Italy
Tecnology: Mid level
Passions: Watching movies and tv-series on streaming platforms

Persona
Vittoria is 25 years-old and comes from Rome. She is a university student and in the free time her main hobby is watching movies and tv-series on her favourite streaming platforms. During her study breaks she likes to keep in touch with her friends on various social apps.

Scenario
Vittoria has just terminated an intense study session and now she only wants to relax watching a movie. She decides to call her best friend to spend the evening together. Once she arrives, in order to choose which movie to watch, they both open the app to compare their watchlists. After a while they realize that both have "La La Land" in their watchlists and so decide to watch it together. At the end of the evening they both check it as "watched" in their app.

2.2.3 Persona 2 - Emanuele

Age: 33 years-old
Gender: Male
Profession: Programmer
Education: Degree
Location: Torino, Italy
Tecnology: High level
Passions: Action movies, technology

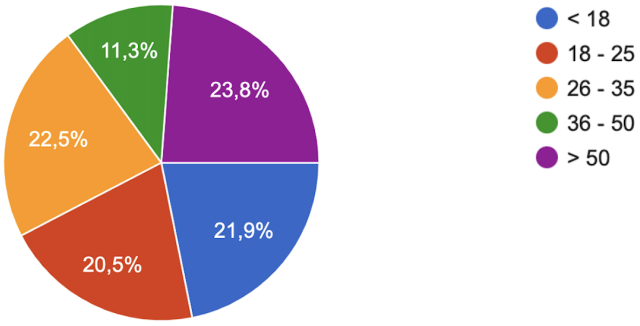
Persona
Emanuele is 33 years-old and comes from Torino. He is a programmer and he likes very much going to the cinema with his girlfriend. As a programmer, he is addicted of technology in general, and more specific of mobile devices; moreover he is a very organized guy, and so he likes to keep under control everything he does in his life using mobile apps.

Scenario
It is an afternoon autumn day. Emanuele and his girlfriend would have liked to go out for a walk, but since it's raining, they don't know what to do. So, Emanuele opens the app in search of new movies available in cinemas. In this list he founds that is just available a new action movie with his favourite actor Vin Diesel; since also his girlfriend likes action movies, they decide to go to the cinema to watch it and spend a good afternoon together.

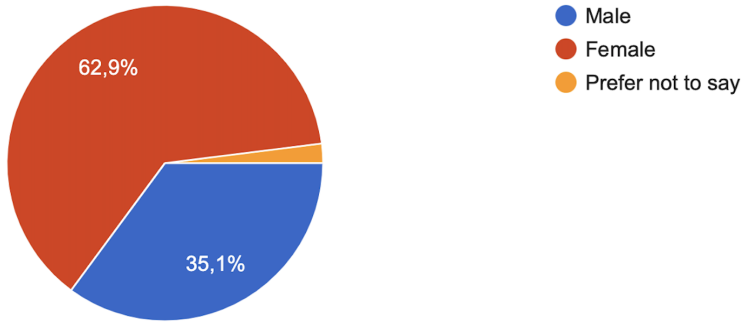
2.3 Questionnaire analysis

Questionnaires are a useful method to investigate user needs, expectations, perspectives, priorities and preferences. They are useful in user requirement but also in evaluation phase to investigate user satisfaction, user attitudes and opinions, relevance of collections and services to user needs, trends. We designed the questionnaire in such a way that each question was clearly written, in order to not lead the user to a specific answer and to always make them feel confortable while answering. Below we present the questionnaire results used to better understand the target of potential users in order to have a better refinement of some aspects of our application. More precisely, we reached 151 people, and so we had a good number of answers, statistically speaking.

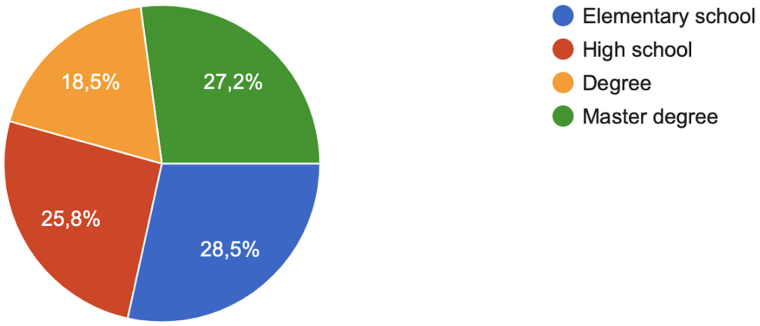
What's your age?



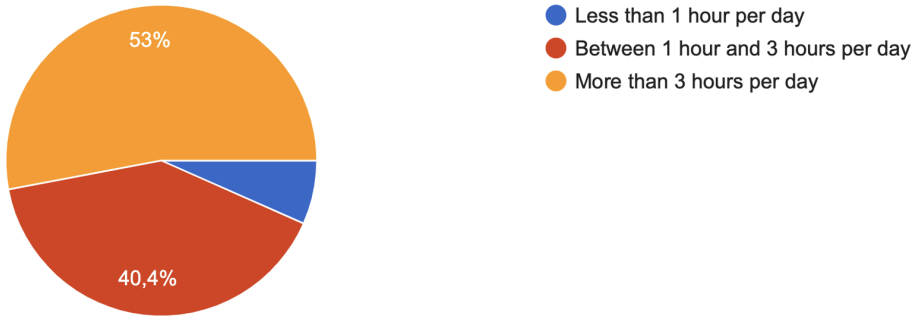
What's your gender?



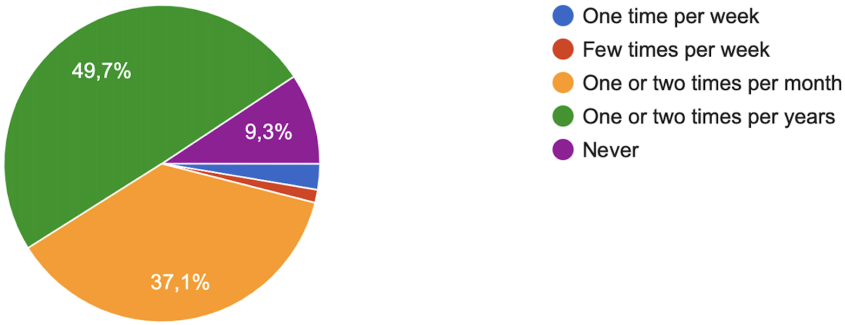
What's your educational level?



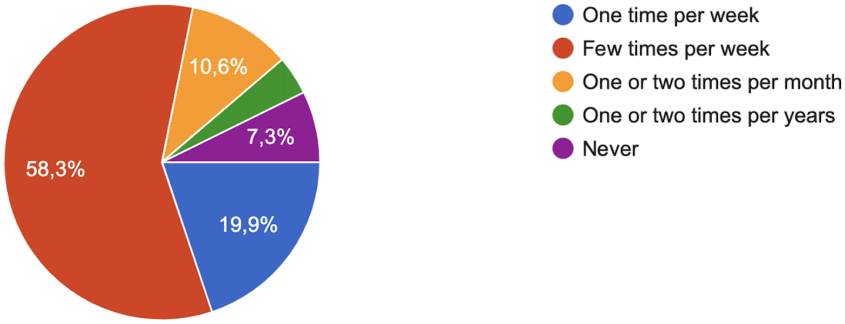
How frequently do you use your smartphone on average?



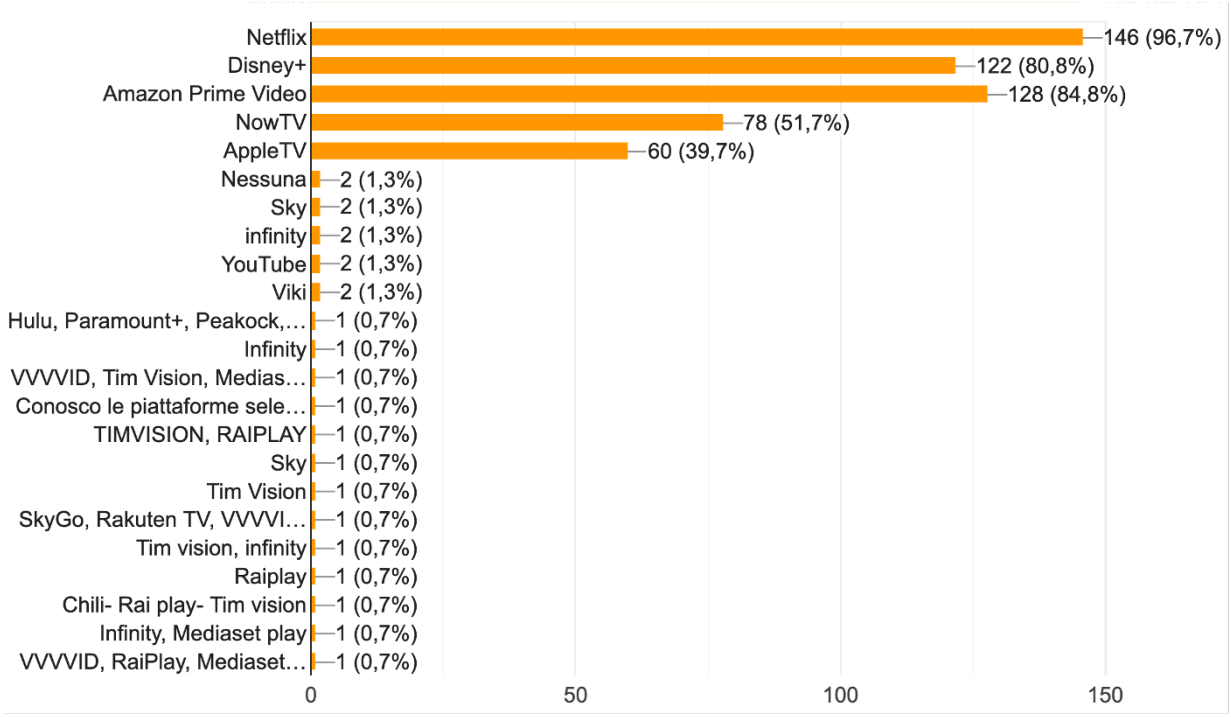
How many times do you go to the cinema on average? (Before pandemic)



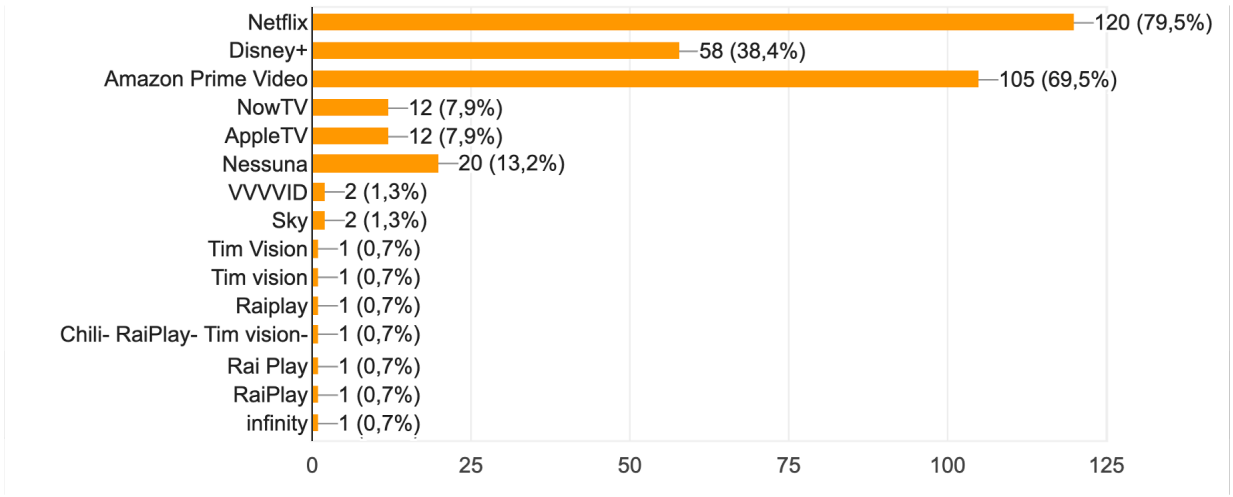
How many times do you watch movies on streaming platforms/tv on average?



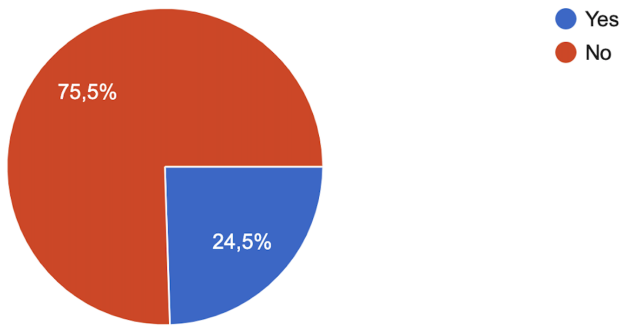
Which streaming platforms do you know?



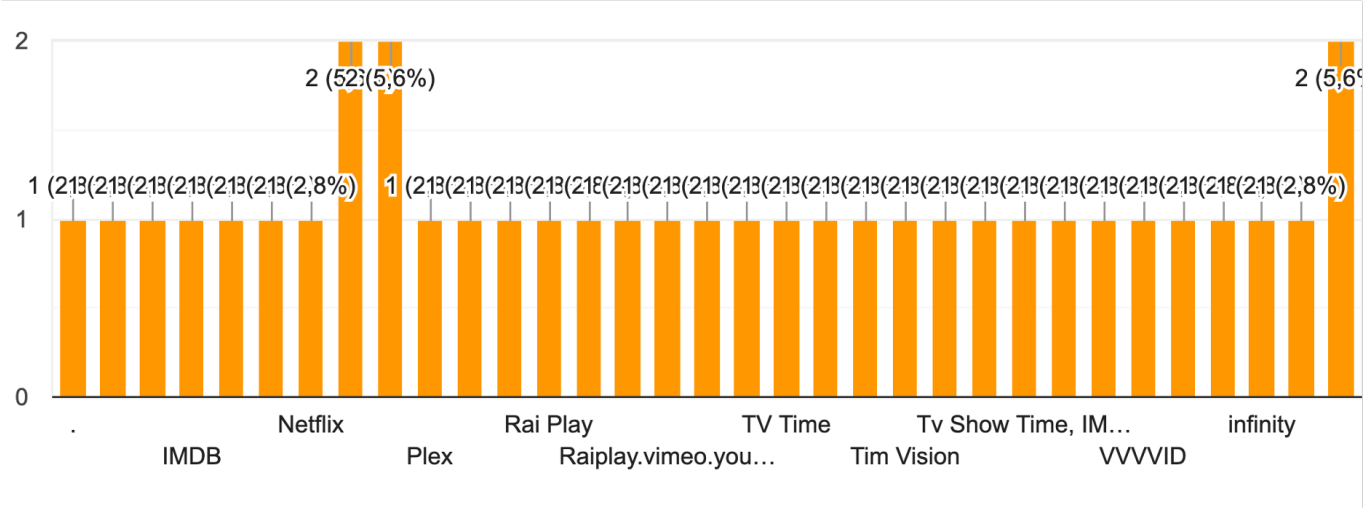
Which streaming platforms do you use?



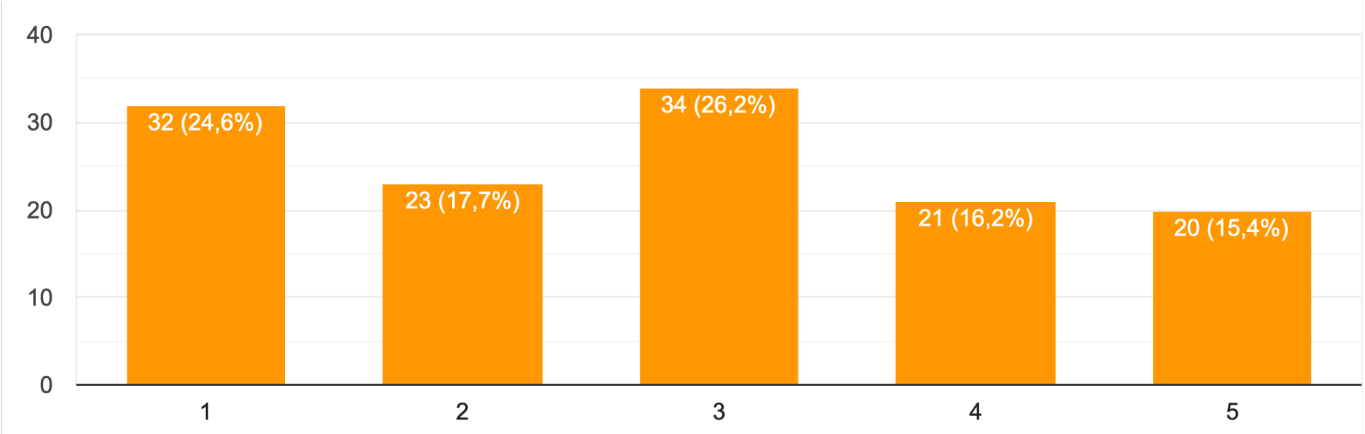
Do you use any movies related app?



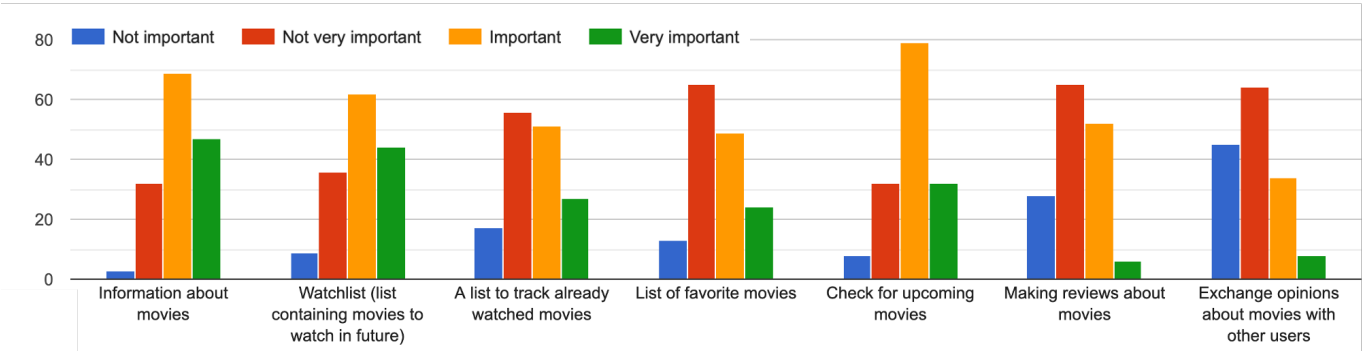
If you use any movies related app, which one?



If you don't use any movies related app, how much would you be interest in using one?



How much do you think the following features are important in such an app?



2.3.1 Conclusions

After having analyzed the results obtained from the questionnaires, we have formalized the following conclusions:

- Regarding ages, we noticed that there is no predominant range, but they are more or less equally distributed between 18 and 50, and the majority of them are women.
- The majority of them uses smartphone more than 3 hours per day.
- Since we noticed that the majority of people rarely goes to cinema and conversely watches very often movies on streaming platform, we decided to focus our app on this feature.
- Moreover, given the fact that a very high number of people does not use a movie related app and that the majority of them would be interested in doing this, we thought that the idea of such an app would be very appreciated.
- Finally, from the last question, emerge the most wanted features such as have informations about movies, have the possibility to add movies to lists and have informations about upcoming movies, and so we decided to focused on them.

3 Task analysis: HTA and STN

In this section we are going to present HTA and STN in order to formalize the main task of our application and to analyze and describe how users can reached their goal.
Hierarchical Task Analysis (HTA) is a task description methodology that is used to produce a complete description of tasks in a hierarchical structure of goals, sub-goals, operations and plans in order to have a complete representation of the action.
Instead, a *State Transition Network* (STN) epresents a dialog between the user and the system, in which the system could support the tasks that the customer has to execute. It provides a description of which the available actions are at a certain point, and the consequent state the system will reach.

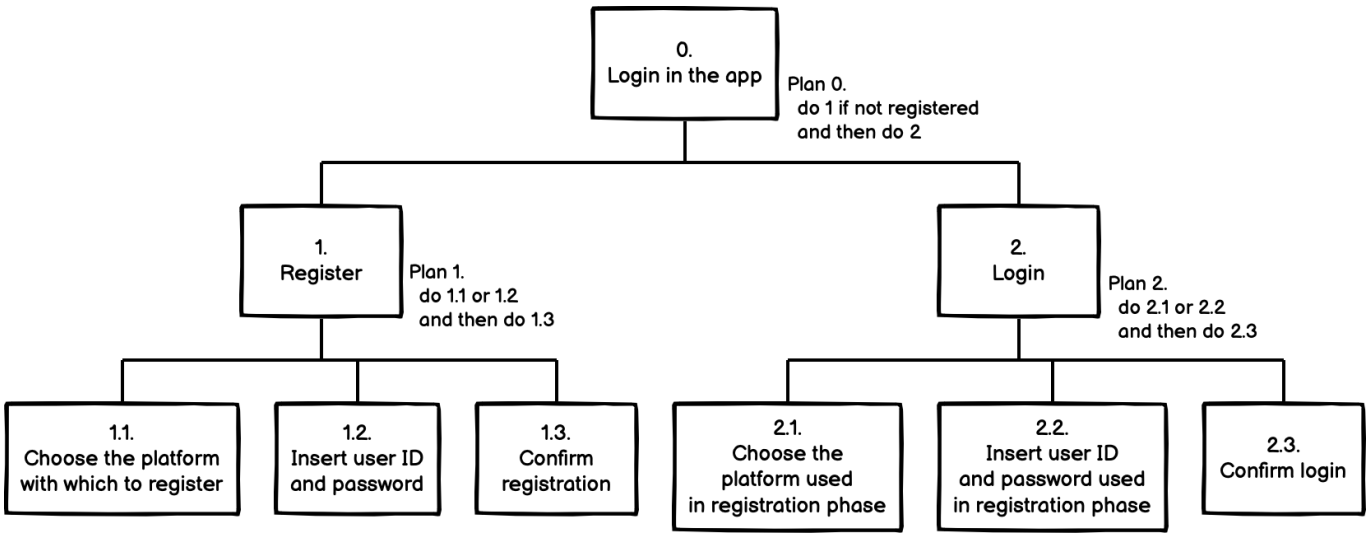
The main tasks that the user can do in our application are:

- The user can login into the app.
- The user can search movie or an actor or movie director.
- The user has the possibility to add a movie into three lists: watchlist, movie already watched list and favourite movie list.
- The user has the possibility to make a review regarding a movie.
- The user can interact with other users by comment a review written by another user.

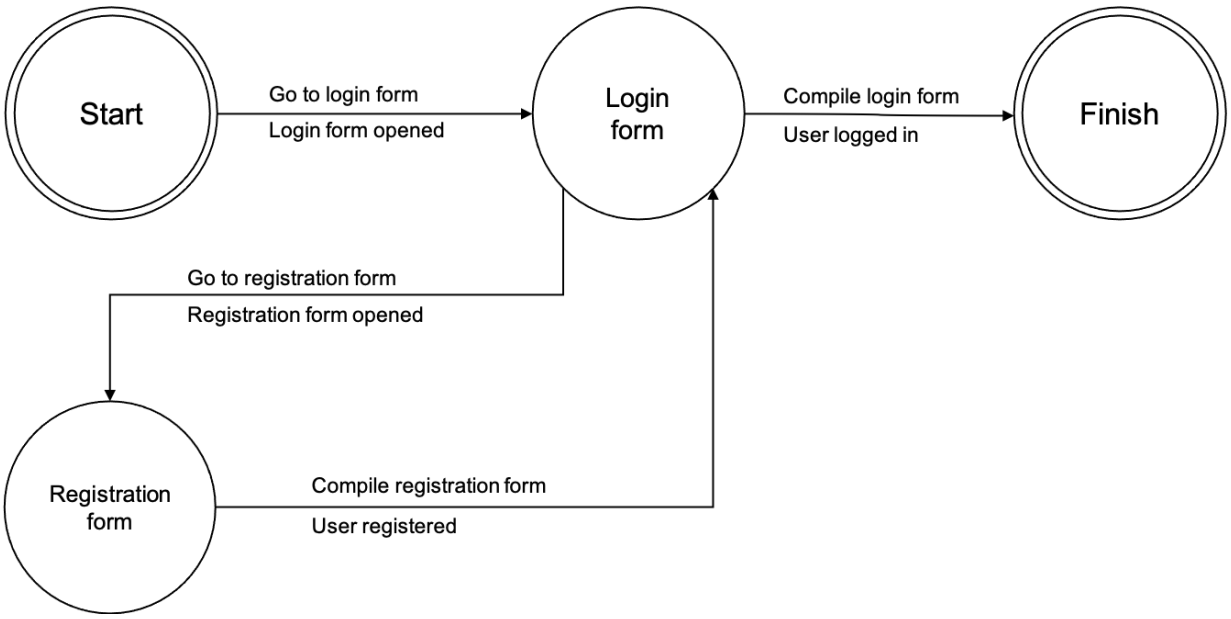
3.1 Login

The user can login into the app if registered, either through online platforms (Google, Facebook) or using his personal email and password, in order to save in the cloud all his data regarding the app. From now on, in the following HTAs, we assume that the user is logged in.

HTA - Login



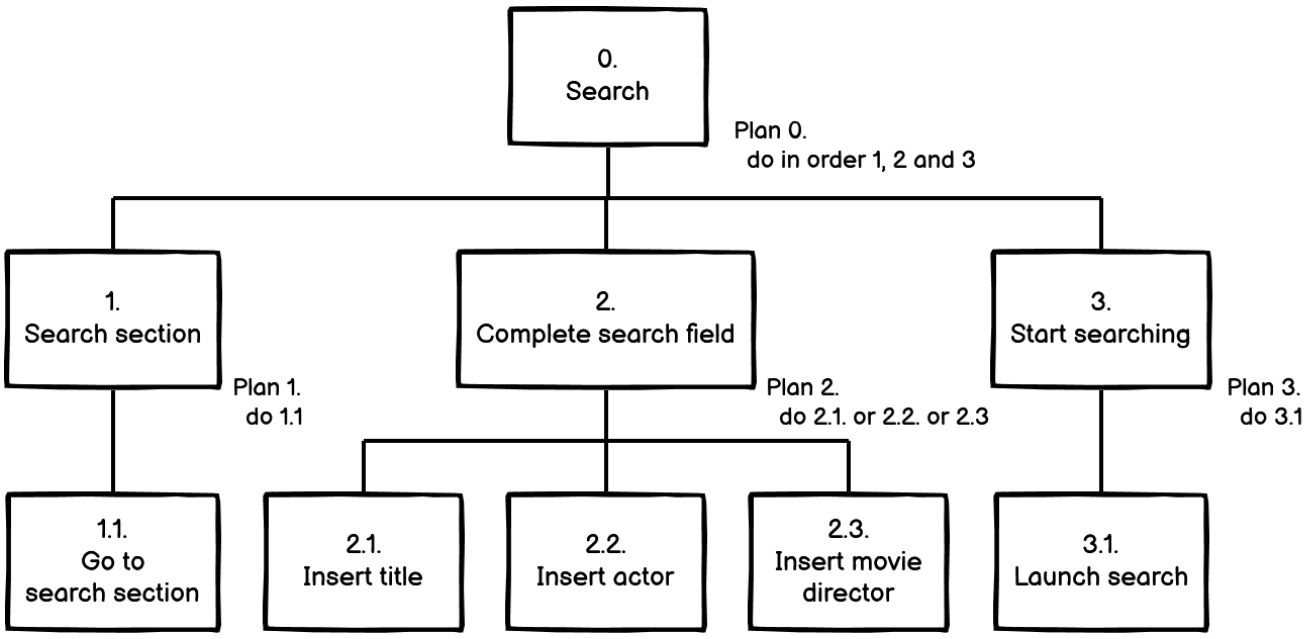
STN - Login



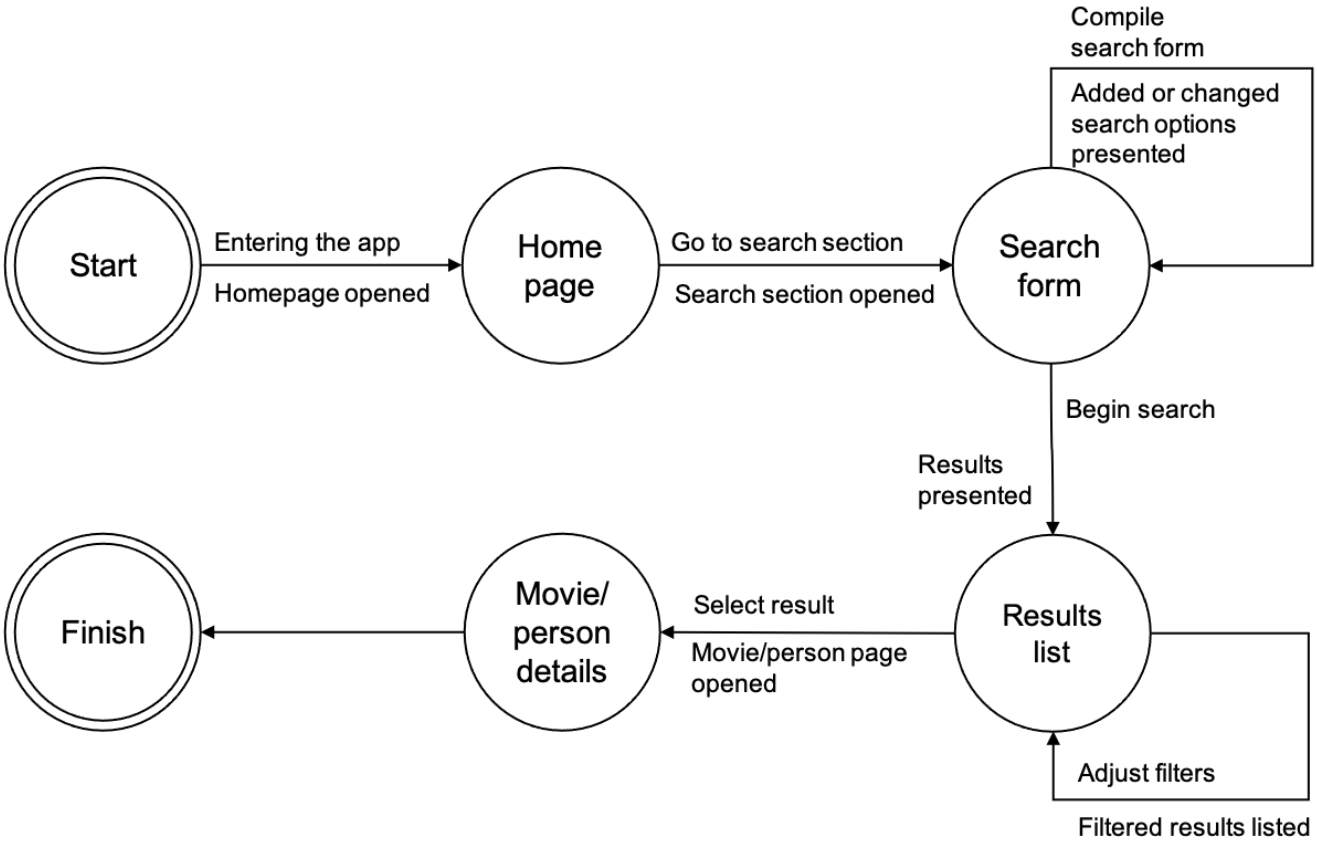
3.2 Search for a movie or a person

The user searches for the movie or the person he wants to know information about. He can do search by title, actor or movie director and, when the results are shown, he selects the result he is interested in.

HTA - Search for a movie or a person



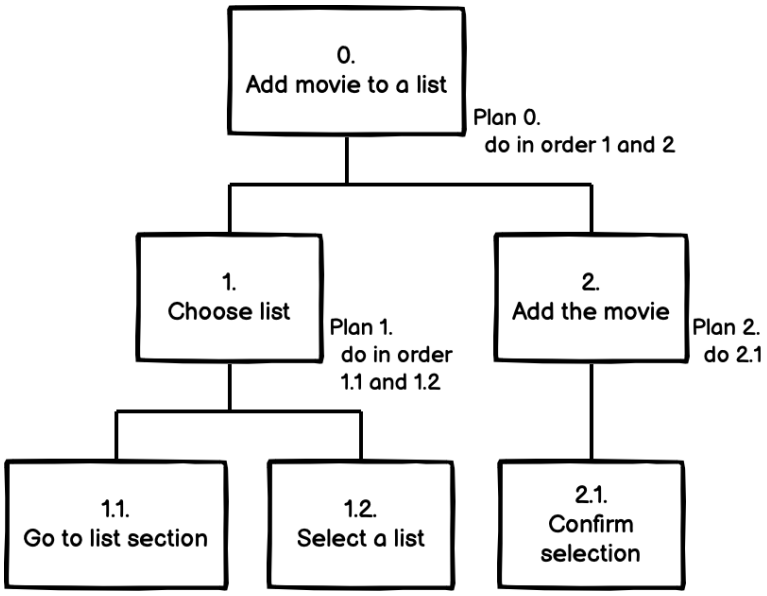
STN - Search for a movie or a person



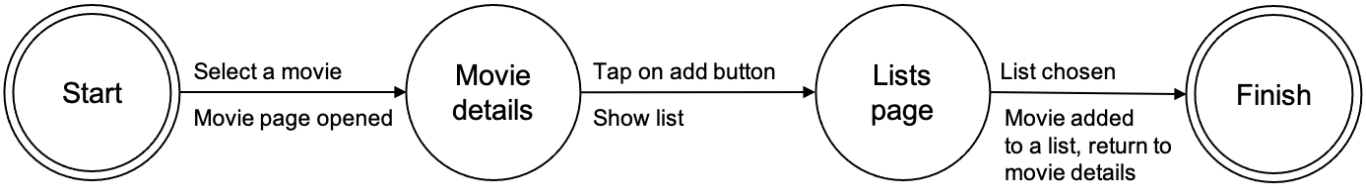
3.3 Add movie to a list

The user can add a movie into a list: he can choose between a watchlist that contains movies to watch in the future, a list containing movies already watched and a list containing favourite movies. We are assuming that the user has already selected a movie.

HTA - Add movie to a list



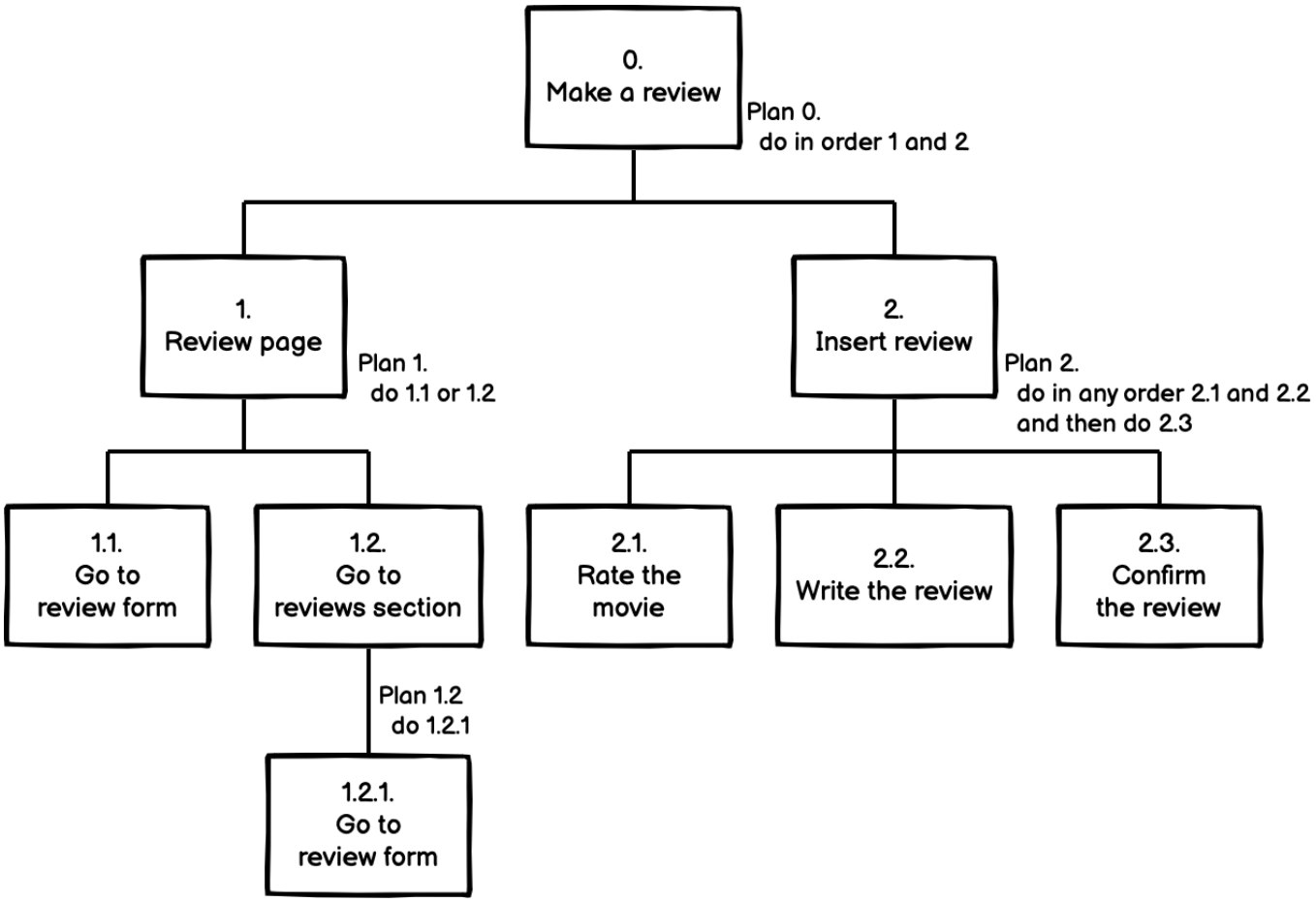
STN - Add movie to a list



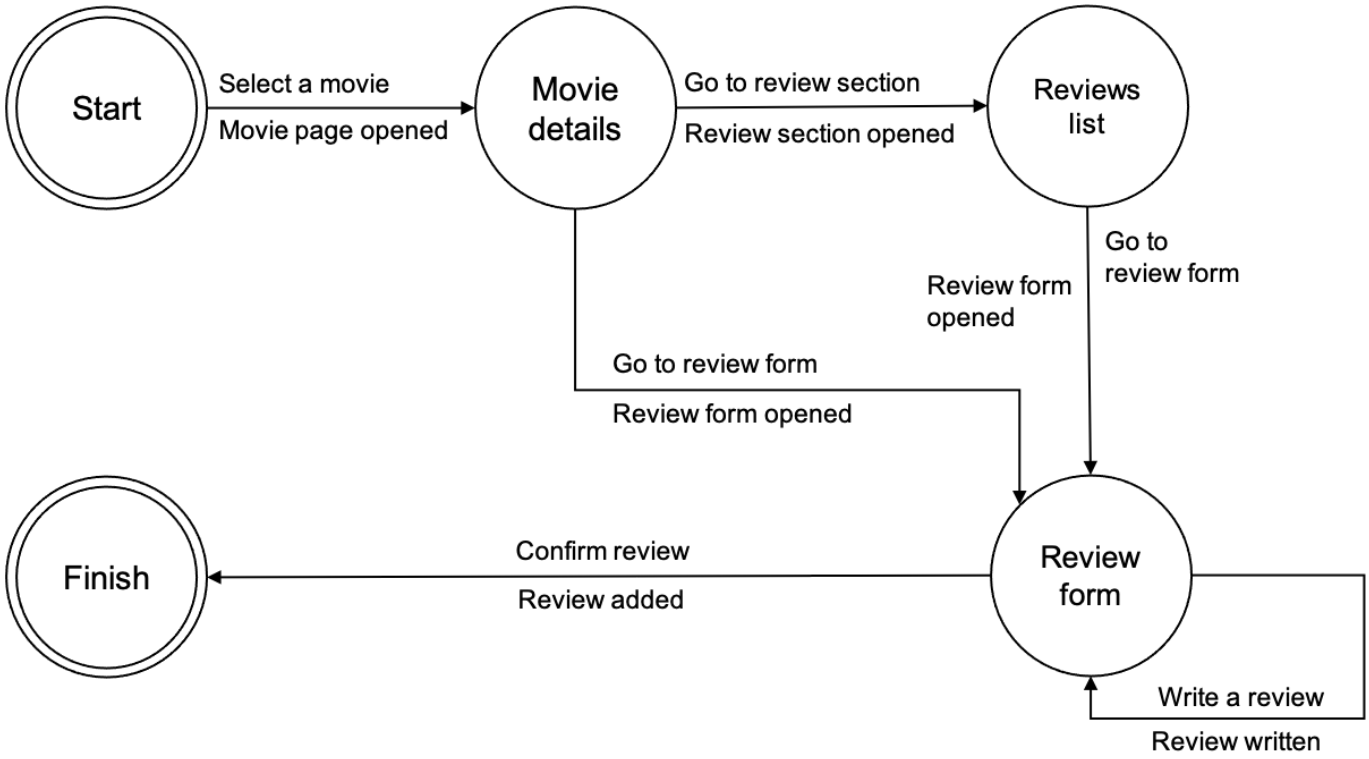
3.4 Make a review

The user can make a review regarding a movie. In particular, once he selected a movie, he can go to the review page either from the movie page or from the page containing all reviews.

HTA - Make a review



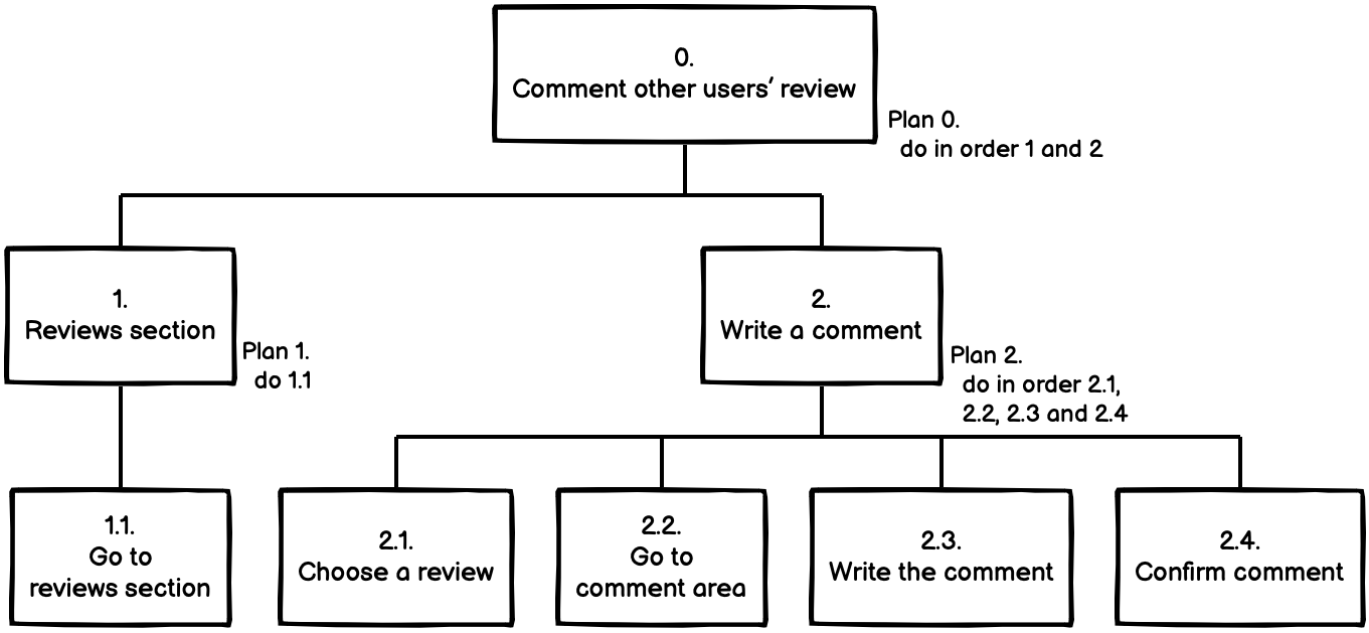
STN - Make a review



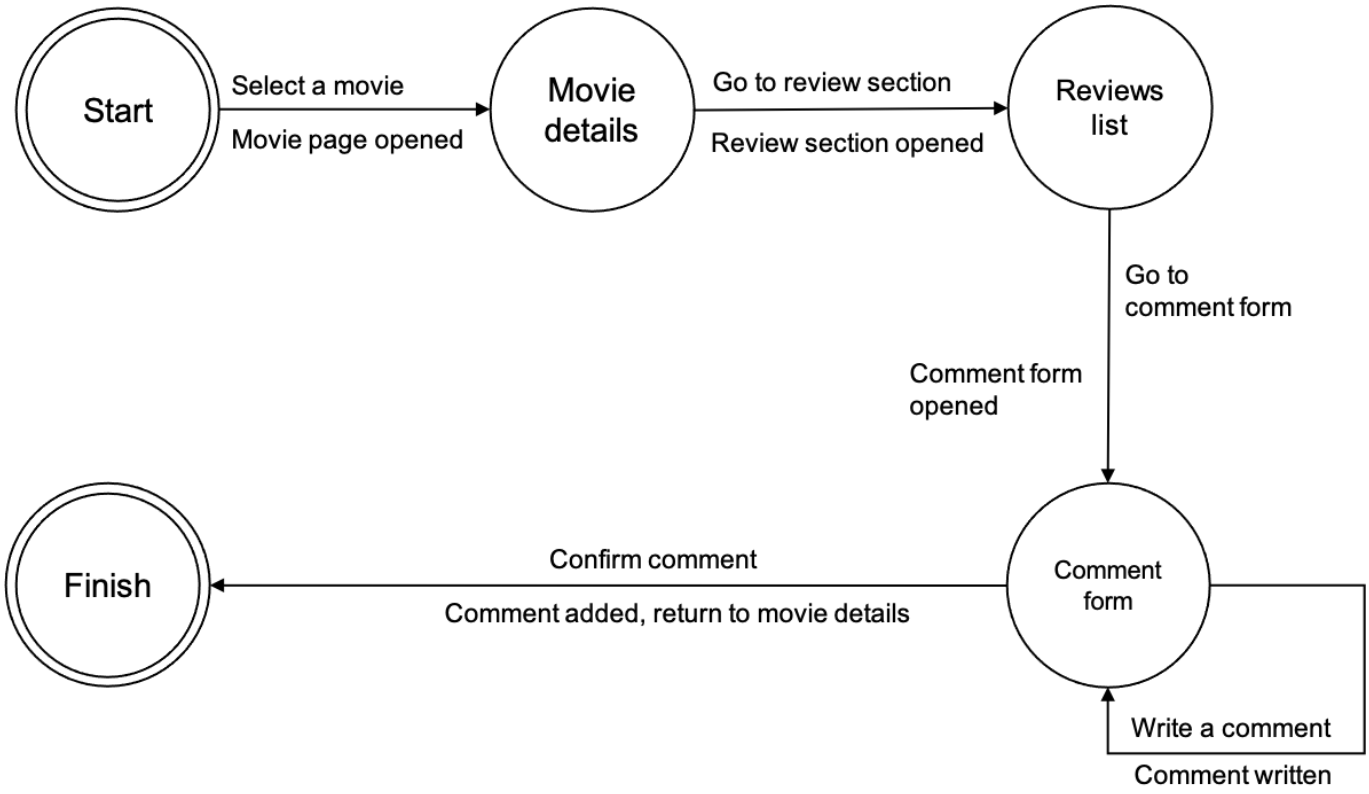
3.5 Comment other users' reviews

The user can comment a review written by another user. In particular he can go to the page containing all the reviews, choose one of them and comment it.

HTA - Comment other users' reviews



STN - Comment other users' reviews



4 Mockup and prototype 0

Login and Registration

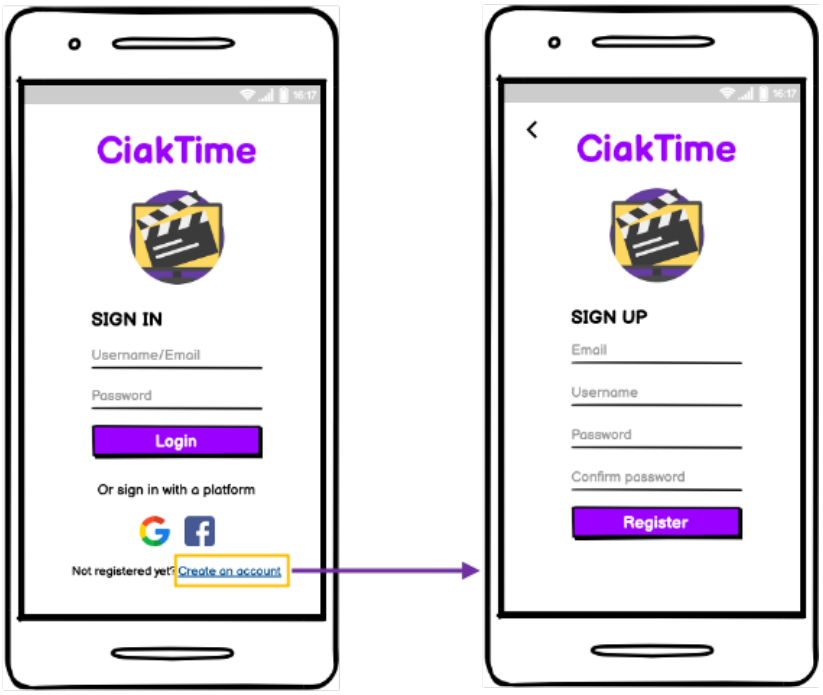


Figure 1: Login and Sign Up pages

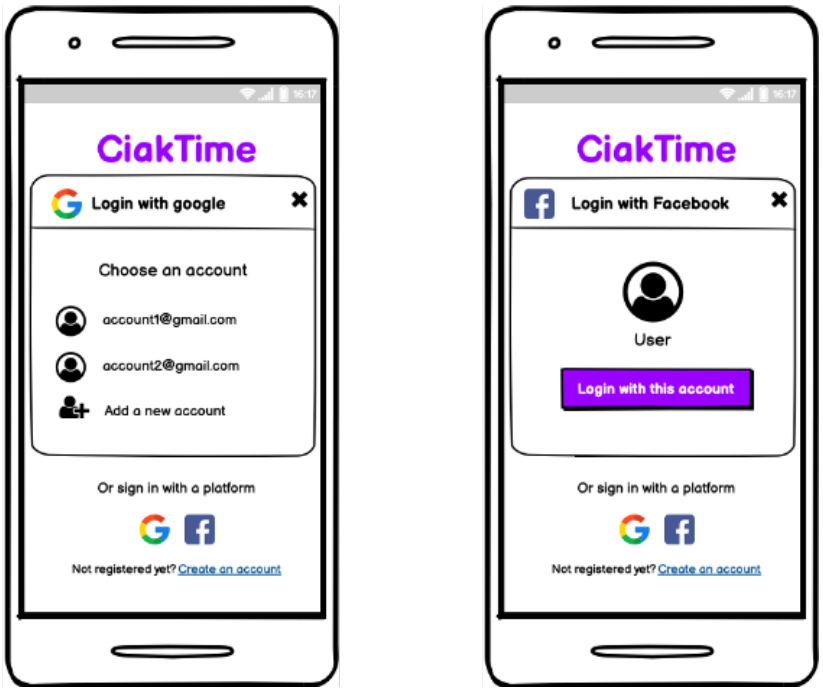


Figure 2: Login with Google and Facebook

Search for a movie or a person

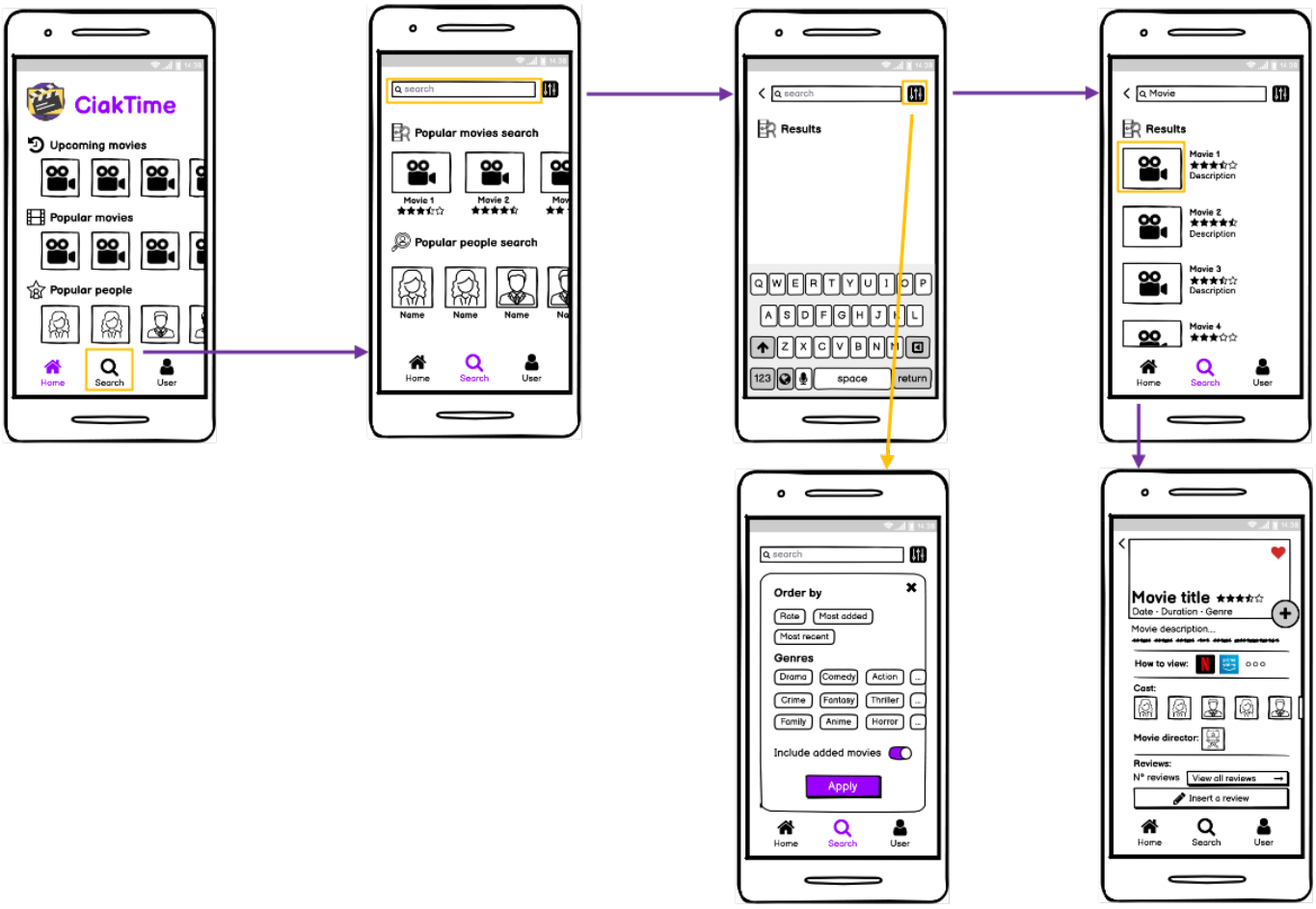


Figure 3: scrivere

5 Expert Based Evaluation

The expert evaluation is based on our first prototype, the *mockups* and it's really useful for discovering problems. This is a very important thing to do until the implementation because allow us to detects problems in early stage.

We submitted our *mockups* on two different expert evaluation, made by professor Valeria Mirabella: ***Heuristic Evaluation*** and ***Cognitive Walkthrough***.

5.1 Heuristic Evaluation

Heuristic Evaluation is an inspection method used to evaluate if the system follows general usability criteria. The expert should check if the system is consistent and evaluates if the usability problem that may occurs is a major problem, a minor problem or just something that could be left as it is. The evaluation is made by assign severity level. The main goal of heuristic evaluations is to identify any problem associated with the design of user interfaces.
The Heuristic Evaluation used is based on the Jakob Nielsen's 10 Usability Heuristics:

1. *Visibility of system status*: the system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

2. *Match between system and the real world*: the system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

3. *User control and freedom*: users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

4. *Consistency and standards*: users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

5. *Error prevention*: even better than good error messages is a careful design which prevents a problem from occurring in the first place.

6. *Recognition rather than recall*: make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable.

7. *Flexibility and efficiency of use*: accelerators (unseen by the novice user) may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

8. *Aesthetic and minimalist design*: dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

9. *Help users recognize, diagnose, and recover from errors*: error messages should be expressed in plain language, precisely indicate the problem, and constructively suggest a solution.

10. *Help and documentation*: even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large. whenever appropriate.

After the expert based evaluation, in the following table, it has been reported that the following heuristics have been violated:

Frame	**Heuristic violated**	**Severity**	**Description / Comment**
Login form	Help users recognize, diagnose and recover from errors	3	Include a Forgot password? link
Registration form	Error prevention	2	Provide function to show password in clear text
Registration form	Error prevention	2	If you have set some rules for the format of user password, make them clear before the user click to submit
Movie detail	Aesthetic and minimalist design	3	In the same page you have a lot of information. Prioritize the content and features to support primary goals.
All	Recognition rather than recall	4	You can arrive in the same page navigating different sections. It could be confusing. Support wayfinding, for example by including breadcrumbs
Add a review (ore rate a movie)	Error prevention	3	Present users with a confirmation option before publish the review

The severity number identify:

- 0 = I don't agree that this is a usability problem at all
- 1 = Cosmetic problem only
- 2 = Minor usability problem
- 3 = Major usability problem
- 4 = Usability catastrophe

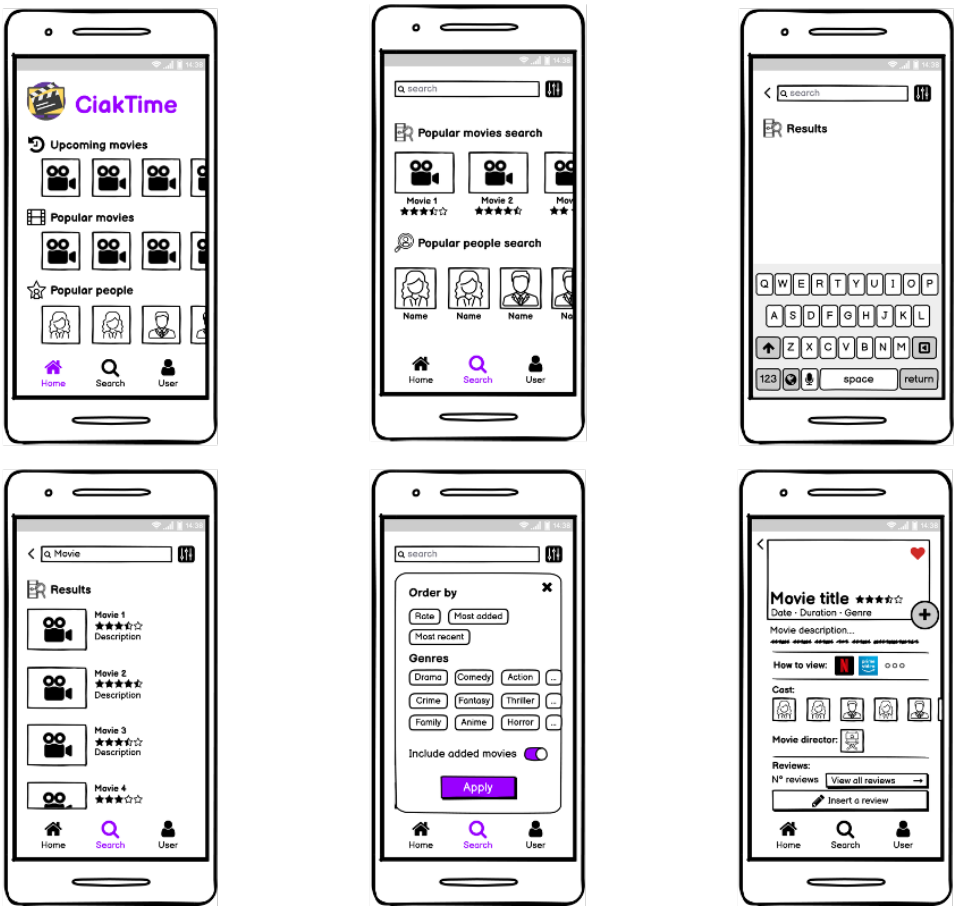
5.2 Cognitive Walkthrough

Cognitive Walkthrough is related with the idea of discover cognitive efforts of the user and how well the system supports the user executing the actions. The idea of method provides the expert walks through the system in order to understand if the actions provided by the system well support the user in doing such task. The analysis is guided by four predefined questions:

- Q1: Is the effect of the action the same as the user's goal at that point?
- Q2: Will users see that the action is available?
- Q3: Once users have found the correct action, will they know it is the one they need?
- Q4: After the action is taken, will users understand the feedback they get?

Task 1 - Search the movie "Harry Potter and the Deathly Hallows - Part 2" to see the movie details.

Action 1: open the application (assuming that the user is already logged in)
Response 1: homepage is opened
Action 2: tap on the search icon
Response 2: the search page is displayed
Action 3: tap on the search bar
Response 3: the keyboard shows up
Action 4: type "Harry Potter"
Response 4: each digit is displayed as typed and the system shows the corresponding results
Action 5 – 6 – 7: [OPTIONAL] tap on filters' icon, select "most recent" filter and tap on apply
Response 7: the system shows the results according to the chosen filter
Action 8: select "Harry Potter and the Deathly Hallows - Part 2" from the list of the results
Response 8: the systems shows the page of the selected movie containing all the related details



Expert evaluation:

Action 1: open the application (assuming that the user is already logged in)
Response 1: homepage is opened

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 2: tap on the search icon
Response 2: the search page is displayed

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 3: tap on the search bar
Response 3: the keyboard shows up

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 4: type "Harry Potter"
Response 4: each digit is displayed as typed and the system shows the corresponding results

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 5 – 6 – 7: [OPTIONAL] tap on filters' icon, select "most recent" filter and tap on apply

Response 7: the system shows the results according to the chosen filter

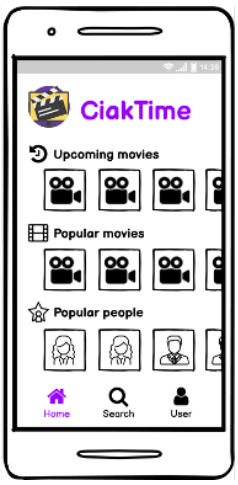
Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Users with no experience could not recognize the icon
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 8: select "Harry Potter and the Deathly Hallows - Part 2" from the list of the results
Response 8: the systems shows the page of the selected movie containing all the related details

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Task 2 - Add a popular movie to the watchlist.

Action 1: open the application (assuming that the user is already logged in)
Response 1: homepage is opened
Action 2: tap on a movie from "popular movies" section
Response 2: the movies page is displayed
Action 3: tap on the "+" button
Response 3: lists' popup is displayed
Action 4: tap on watchlist
Response 4: the movie is added to watchlist



Expert evaluation:

Action 1: open the application (assuming that the user is already logged in)
Response 1: homepage is opened

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 2: tap on a movie from "popular movies" section
Response 2: the movies page is displayed

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 3: tap on the "+" button
Response 3: lists' popup is displayed

Q1 - Is the effect of the action the same as the user's goal at that point?
It could be not clear that the + button is needed to reach the goal
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
Yes

Action 4: tap on watchlist
Response 4: the movie is added to watchlist

Q1 - Is the effect of the action the same as the user's goal at that point?
Yes
Q2 - Will users see that the action is available?
Yes
Q3 - Once users have found the correct action, will they know it is the one they need?
Yes
Q4 - After the action is taken, will users understand the feedback they get?
There aren't enough elements to answer

6 NOME

7 NOME

8 NOME

9 NOME