



BAU
BAHÇEŞEHİR ÜNİVERSİTESİ

SEN 3304 HUMAN COMPUTER INTERACTION PROJECT

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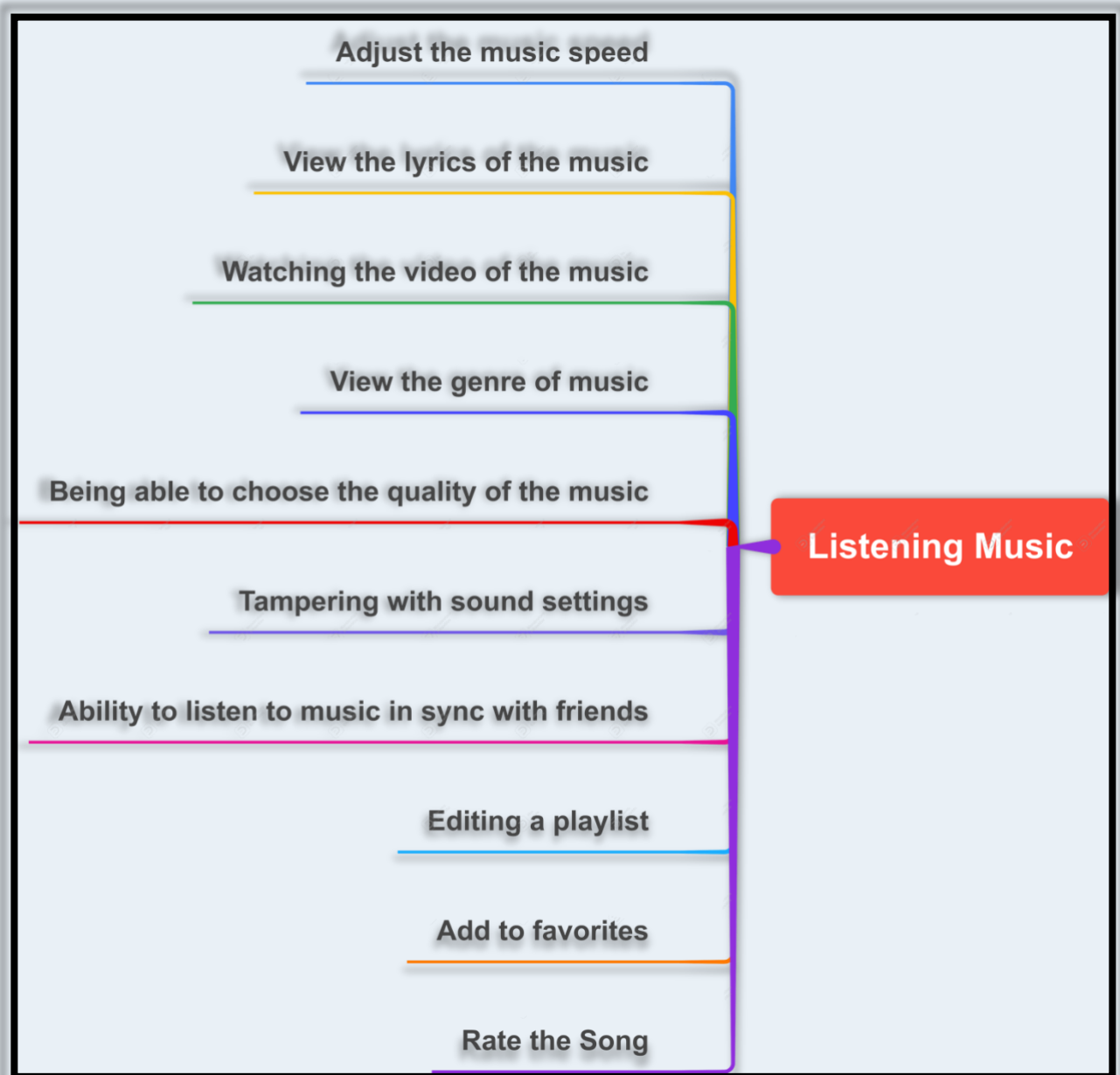
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1.

Intra Music's vision, mission and core values have created the organization's global image, emphasizing the effectiveness of its operations. Intra Music has therefore attained and decided a technique to command and strategize a vast following as an internet music streaming network, thanks to its vision and descriptions. Thanks to this application, people will have the opportunity to listen to the song they want in sync with their Intra Music friends. You can view the lyrics simultaneously with the song in the Intra Music app. It would not be right to see Intra Music as just a music listening application, as Intra Music allows you to upload your own songs, it will allow you to share your art with your listeners all over the world. Users will be able to listen to existing songs with their clips if they wish. Users will be able to rate songs and list high rated songs.

2.



Uploading Music

Editing the lyrics of the music

Selecting a genre

Edit music photo

Selecting ads

Choose when music can be released

Upload the music video

Sharing up-to-date information with audiences

Downloading Music

Sharing Downloaded Music with someone else

Download the video of the music

Choosing the music quality

Determining when downloaded music will be deleted from the system

download playlist

Remix downloaded music

3.

In the development of the application, certain qualities must be taken into account. By carefully examining and evaluating these qualities, applications that users will love more and that are more comfortable to use will be developed. The first of these qualities is the usability of the application. This is an issue that many technology companies have thought about and perhaps spent millions of dollars on for many years. It has vital importance and value especially for interactive applications. Usability can be divided into some sub-headings in itself. The first of these is the effectiveness of the application. It is one of the most important topics for us and many companies. Because the main target of the application is the users. For this reason, target users should have the opportunity to do whatever they want in the application in an extremely easy and effective way. The presence of the smallest problem in any of these mentioned will push the user not to use the application. This is one of the most important issues in the music application we have developed. That is, the application is effective. Our application is able to fulfill all the promised features without any problems. Another sub-title is the efficiency of the application. As a result of the age we live in, it is not enough for applications to fulfill certain tasks. These tasks should be completed in the fastest and most effective way. In other words, it is necessary to emphasize the importance of optimization in this section. Technology giants such as Google, Facebook and Amazon are currently working on these issues the most. They continue their research on how we can make their projects more optimal, and they allocate a lot of money to these issues. This part takes a very important place in the application we have developed. We need to fulfill the user's requests by using extremely fast search algorithms for searches that users may make within millions of songs. That is, the transactions should be done by choosing the fastest and most accurate way. In fact, instead of sticking to a single algorithm, it may be necessary to use different algorithms in line with some conditions. Another topic is that the application should be easily learned. The creators of Google once said that we designed Google in a way that even the dumbest person in the world could use it. In this way, they have succeeded in becoming a search engine that can be used by people from all walks of life. This is another feature we pay attention to in our music app. It is quite easy to learn. Because many of the designs we use have already been developed on the basis of designs that people have been accustomed to for years. Since we are targeting every person who loves music, we need to consider every user profile. For this reason, some tutorial videos on how the application works have been prepared. In other words, an application has been developed that everyone can learn to use extremely easily. Another important point is to ensure that these teachings have a permanent place in people's minds. Since the application is simple, it will be very simple for people to remember the functions of the application. In addition, the user experience should be top-notch. The application should affect the user in terms of aesthetics. All these mentioned features are indispensable features of an application. It is necessary to examine these mentioned features by taking into account the wishes of the users. We can list the user requirements for our application as follows.

- o It should be ensured that song search algorithms work fast and error-free.
- o Users should be able to make Playlists.
- o Users should be able to listen to synchronized songs in the application.
- o Users should be able to share the songs they want with the people they want.
- o The application should have the ability to upload songs.
- o Lyrics must be viewable.
- o Users should be able to download songs.
- o Users should be able to add other users as friends.
- o Users must have access to other users' playlists.
- o The songs that users listen to should be instantly viewable.
- o Detecting the song from the playing song
- o Users who want should be able to learn the name and artist of the song from the song playing.
- o Users should be able to view popular songs.
- o Users can like the artists they want with the like button and then view them again.
- o Users should be able to like songs.
- o Receive notifications when artists you like add new songs
- o It should have the ability to edit songs (like remixing, adding extra sound...)
- o Ability to choose music quality
- o Have a karaoke mode.
- o Users should be able to rate songs.
- o Users should have a song recommendation system based on the songs they like.
- o Playlists similar to the songs you like should be created automatically by the application.
- o The necessary action must be taken with an algorithm that classifies the songs according to their genre.
- o It should have the ability to create a new playlist with songs that are in common with your friends.
- o Choosing an album cover
- o Uploaders should be able to choose their song's cover art
- o Users who want to upload songs will be able to determine the ads themselves.
- o Users who upload songs should be able to select clips and images of their songs
- o Sending an artist notification
- o Users who upload songs should be able to own the copyright of their songs.

4.

Personae 1

Aylin is a 17-year-old high school student. She herself lives in Antalya, she. Aylin also has an older sister. She goes to university with her older sister. Her mother and father are doctors. We can also conclude from this. The economic situation of Aylin's family is quite good.

She is also a successful student, she. For this reason, she is rewarded by her family. Her family bought her some technological devices due to her academic success.

She owns an iPhone, iPad and Macbook of her own. In other words, we can say that she has preferred Apple. She is a good technology user. But she doesn't know much about the technical details of technology, she. She doesn't really need to know, she. In addition, she has a wireless headset. This headphone may be one of the most used accessories. From this, we can conclude that she likes to listen to music very much. He's someone who took piano lessons when he was little, so he's pretty good with music. She usually likes to listen to foreign music she. To talk about the type of songs she listens to, Aylin is someone who listens to all kinds of songs.

Generally, she is a very important factor in determining the songs she will listen to that day's morale. In other words, she likes to listen to slow songs when she is unhappy, and listens to upbeat music when she is happy. Aylin loves to develop herself artistically and loves to listen to new music and artists from time to time. Aylin does not neglect to listen to music while going to school or doing sports. Music is a part of her life for her. Aylin does not neglect to record the music she likes. She loves going to the concerts of the artists she loves. She even went to England for just one concert. She follows concerts very closely. When we look at the general profile, we can say that Aylin loves listening to music and has no interest in the more technical parts of the job. So she is a very good music listener.

Scenario 1

The IntraMusic application we have developed is an application that has the potential to fully meet Elif's expectations. The application has some additional features for devices with IOS operating system. Since Elif's phone has the IOS operating system, Elif will be able to benefit from these features. One of them is that IOS devices have the ability to perform emotion analysis. In this way, data transfer will be realized between the operating system and IntraMusic. After this data transfer, special song playlists will be created for Elif, according to Elif's current situation. Since Elif has more than one device belonging to the same operating system, she can listen to the songs from where they left off via other devices. She can even enjoy listening to music with more than one device at the same time. Thanks to the advanced algorithms of IntraMusic, the music or music genres sought can be viewed by Elif very quickly. If she wants, she can use the "ADD FRIEND" feature of the application and send a friend request to the people she wants and see the music her friends are listening to. In this way, she can discover much more new music.

At the same time, she can follow the artists she wants, so she can see the notifications or announcements from the artists she likes. In this way, she will keep himself updated about the upcoming events. Thus, she will not miss the concerts that can be held. One of the most powerful features of IntraMusic, its simplicity, will be one of the biggest pluses for people like Elif to use technology deeply.

Personae 2

Sinan is a 26-year-old music lover. He lives in Istanbul. Since his uncle is a musician, Sinan's acquaintance with music started at the age of 4 years. He started playing the guitar with the influence of his uncle from a young age. He performed at music festivals to represent the school in high school. In his later life at university, he earned money by singing in some venues on weekends. He even sang sometimes in the middle of the street. As he said it, many passers-by stopped to listen to Sinan or videotaped it with their phones. He increased his interest in music after university. It is even possible to say that this interest has turned into a profession. Although he wanted to study at the conservatory at the university, he studied architecture, which he won due to family pressure. Therefore, it has always been a dream to make music professionally. He still continues to play and sing with his instruments at home. The number of songs Sinan composed himself is at a level that cannot be underestimated. We can say that Sinan is a very creative person. His friends and family who listen to Sinan's songs like his songs very much. It is not possible to know whether this admiration is sincere or because Sinan has relatives. Sinan doesn't just deal with playing music. It also has the ability to edit some released songs. He also did cover versions of some of the most popular songs. But the complexity of the programs required to do this hinders Sinan's will. As if singing the song wasn't enough, he also needs to learn how these mixed programs work. After finishing the editing parts of the songs, getting these songs to local or global listeners is another challenge. He tried his luck by using social media applications around the world and country, but it is difficult to say that he was successful. There could be several reasons for this. One of them is that the applications where he uploads his songs are not used only for song purposes. For this reason, it is not easy to reach the audience of people who love music. Despite everything, although Sinan wants to see this love of music as a hobby, his feelings seem to want much more than that.

Scenario 2

Sinan is a person who is more suitable for the role of music uploader among the features of the application. For this reason, the features that Sinan will benefit from IntraMusic will be different. First of all, in order for him to be authorized to upload music, he must open a separate account type and log in to the application. For this, different pricing policies will be applied. After logging in, he will be able to present his music to other listeners as he wishes. If Sinan wishes, he will be able to enter the words of his music into the application. In fact, your app has an algorithm that automatically displays the music lyrics. But he still has the right to make changes with an additional control. At the same time, he can choose the cover photo of his music and even upload the music clip to the application if he wishes. For people who complain about the complexity of music editing programs like Sinan, the IntraMusic application provides some online tools. Thanks to the reinforcement of artificial intelligence, targeted operations can be performed much more easily. In this way, they will have access to a music editor that people with all kinds of knowledge can use and edit their music. At the same time,

people who upload music can interact with their followers. They can send notifications to their listeners-followers.

5.

TASK ANALYSIS

There are 3 main tasks in the IntraMusic application we designed. We can specify the first of these as listening to the desired music. Secondly, we can describe it as allowing artists or users who want to be artists to upload their own music to the application. Finally, one of the main tasks we focus on is that users can download the music they want. Each main task has its own sub-tasks. Below we can observe the analyzed version of each subtask.

We can start by analyzing the task of listening to music, which is one of our main tasks and which we describe as the most important task.

First of all, users must have created an account first. They can then start enjoying IntraMusic by entering their account information.

Let's start by examining the sub-tasks in turn. Our first sub-task is to ensure that the user can listen to the speed of the music they are listening at a speed that they want. The user can speed up or slow down the speed of the music by clicking the necessary buttons. The reason we provide this freedom to the user is that some users like the accelerated versions of some songs more. It should be noted that there is a limit to speeding up or slowing down songs. If this limit is attempted to be exceeded by the user, a warning message will be displayed to the user.

Our second sub-task is to show the lyrics of the song that the user is listening to at his request. The lyrics displayed on the screen will be displayed to the user in sync with the song. In other words, the words spoken by the singer will be replaced with a different color. So the user will be able to see what lyrics the singer is singing.

If your song has a clip, users will be able to watch those clips. If your song does not have a video uploaded by the artist, the user's "watch video" button will not be active. In this way, we inform the user without the need for an extra error message.

Users can access information about the song they are listening to. It can also see the genre of the song, the artist, the album itself, or other songs released by the artist. At the same time, users have the opportunity to view songs belonging to certain music genres.

Internet is required to listen to the songs. At this point, we need to consider every user. Some users may have slow internet speeds or restricted internet rights due to various conditions.

Considering such reasons, users can choose the sound quality of the music they want to listen to. Thus, a more inclusive and user-friendly mechanism is developed. In order to listen to better quality music, it is necessary to have a faster internet or more internet limits. Internet limit refers to mobile data users.

Sound settings, which have now become standard, are available in IntraMusic. Not only the decibel setting, but also some features brought by Dolby Digital can be adjusted by the users. For example, choosing the sound environment and if the user has a headset, he will be able to use some customizations related to the headset.

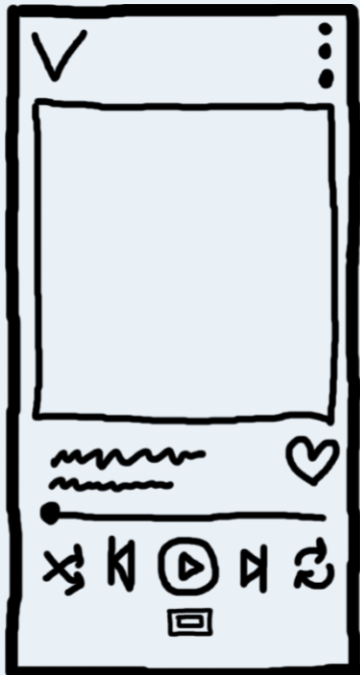
Users will be able to add friends. The first thing they need to do is send a request to the people they want to add friends to. After sending the request, the person they sent accepts the request and they will be recognized by the system as each other's friend. There are a ton of activities that can potentially be done if you become friends with someone. One of them is listening to music together. Users will be able to listen to music in sync with their friends. At the same time, users will be able to chat with their friends if they wish. What they will talk about is described as a private information that is among themselves. For example, they can send each other the link of the song they are listening to.

Users will be able to create their own playlists. Thus, users will not need to search for songs they listen to every time. Likewise, they can listen to playlists made by other people. Or, they can listen to user-specific playlists recommended by the application and designed entirely by considering the songs that users have listened to before.

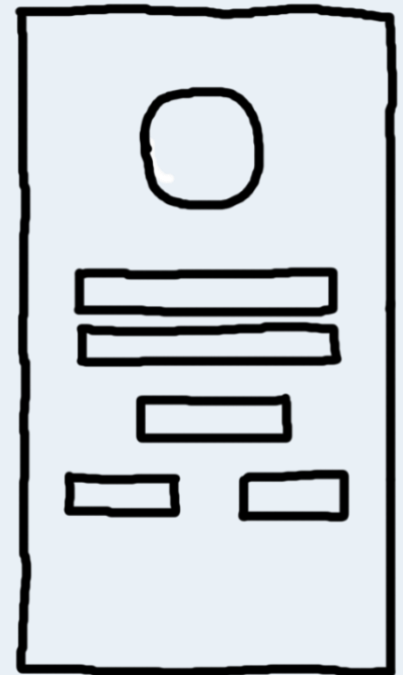
Users will be able to vote for the songs they listen to. All of these votes will be visible to other users. In this way, the percentage of likes of the song will be visible to users. Of course, in order to evaluate the song, the user is required to listen to the song completely. Otherwise, the votes will be meaningless.

This was an analysis of the tasks that users who want to listen to music can do. After this part of the article, we will evaluate what users who want to listen to music can do. First, the user who wants to upload music must open an artist account of his own. After opening this account, he can upload music as he wants. If he wishes, he can enter the lyrics of the song he is uploading to the system. After the music is uploaded, it can present images for users. So they can choose the album cover. Our application strictly protects the rights of artists. The artist who wants to upload content to the application can determine the ads that he can listen to or show to other users. The money that artists earn from these advertisements is sent directly to the artists themselves. Another important feature for artists or content producers in the IntraMusic application is that artists can decide in which regions of the world and when their songs or content will be published. In addition, if artists have clips of their music, they have the right to upload them to the application. Natural artists or creators will have fans. Thanks to our IntraMusic application, artists will be able to send notifications to their listeners. In this way, they will be able to instantly transmit information about the events they want to organize to their fans.

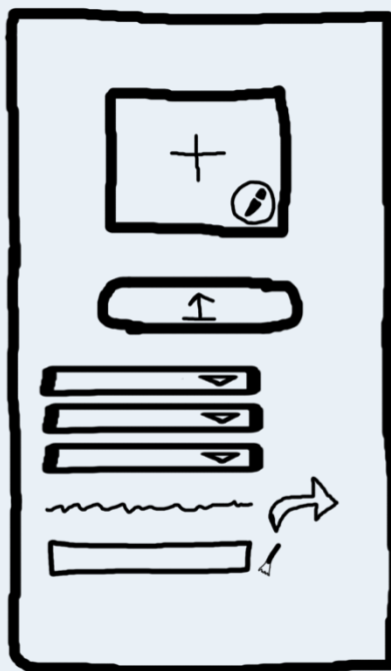
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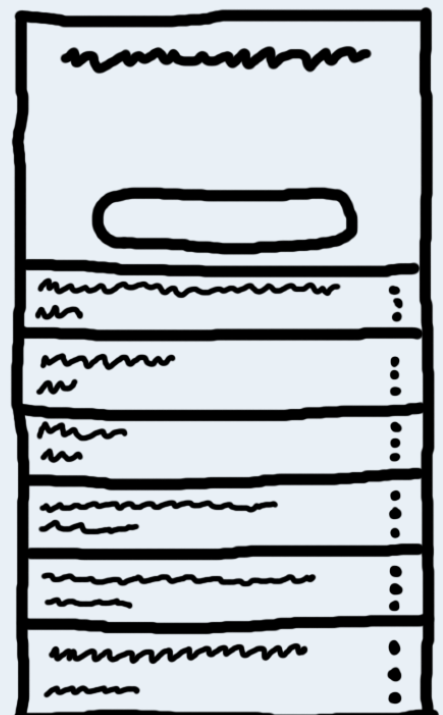
Music Listening Page



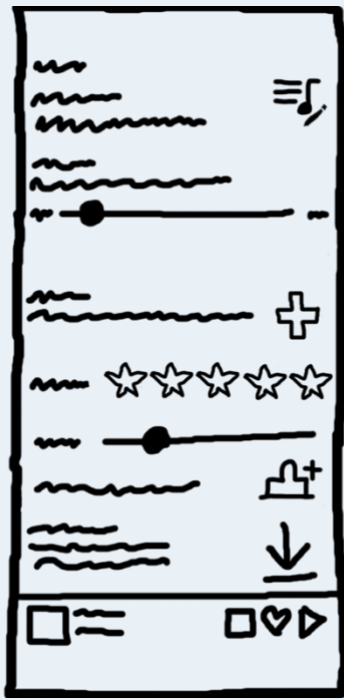
IntraMusic Login Page



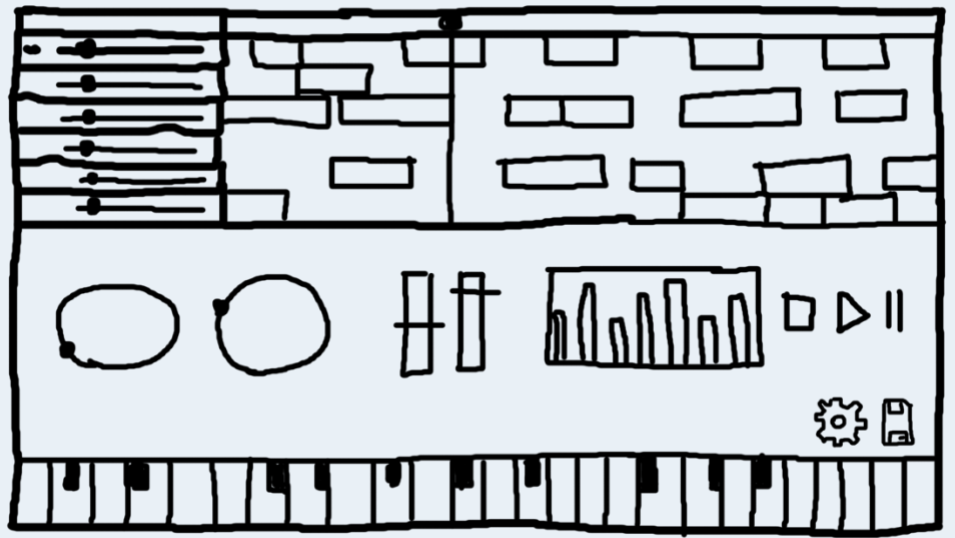
Music Upload Page



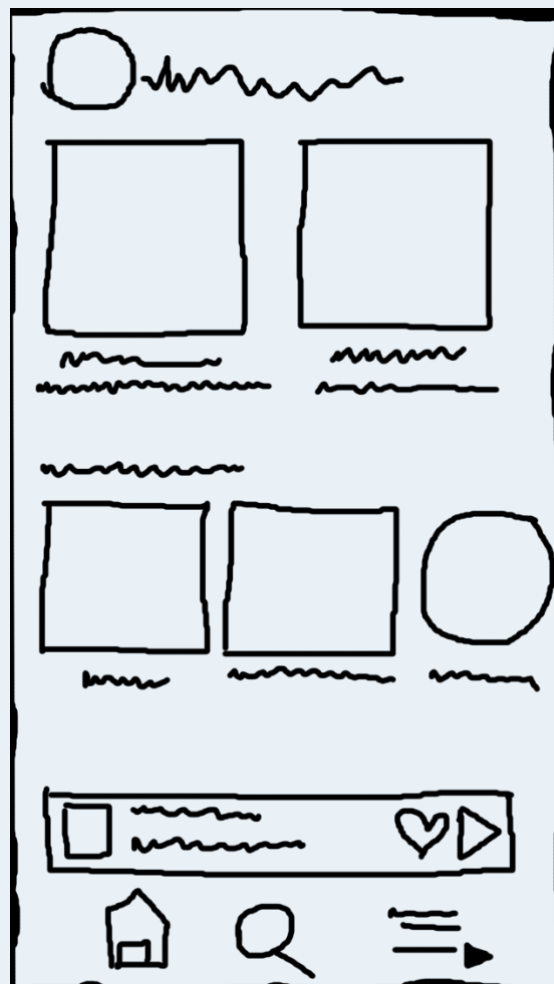
Music Playlist Page



Music Settings Page



Music Editor Page



Main Page

Feedback

It was mentioned at the beginning that we have the first two types of users. The first of these is the user who uses our program as a listener. The other is the type of user called the artist who uploads music to the application. Now let's examine the feedback from these two target users.

User Profile: Music listener

Music Listening Page

At first glance, we can say that it has a very familiar design. Many different music listening applications have similar menu designs. It is possible to see the name and artist of the playing song on the main screen. It is possible to go forward or backward between the songs by means of two certain keys. At the same time, it is possible to like the song with the heart button on the menu. But it is not possible to understand what the button at the bottom means and what it does. In addition, the function of the 3 dots on the upper right screen is not a common design.

Login Page

It is understandable that it is a very classic login page. Only the part of how the necessary functions are used seems to be a little detailed. For example, will users who want to listen to music and users who want to upload music log in to the system on the same screen or where to create an account?

Playlist Page

In this section, we can see the playlists created by the user. We can say that an extremely simple structure dominates.

Music Settings

On this page, we can see that there are some settings related to the music listened to. Almost all possible settings can be seen in this section. We can only say that there are deficiencies in the designs of some logos. For example, the meaning of some buttons is not very clear. It should be ensured that users learn as little information as possible. New shapes should be easy to remember.

User Profile: Music Uploader

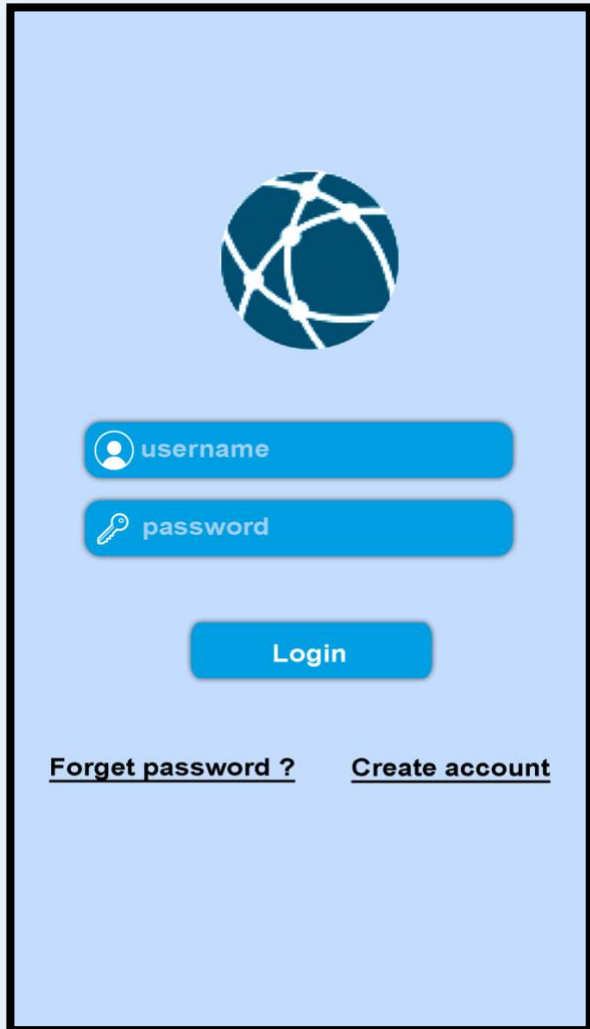
Music Upload Page

Music is being uploaded from this page. At first glance, it is possible to see a complexity prevailing. To understand which button does what, we need the support of some narratives on our side. In addition, the page needs to be updated in terms of aesthetics. The right side is completely blank and is distracting to the eye. No matter how many and important functions the application has, bad design affects everything. After all, no one reads a book with a bad cover.

Music Editor Page

The first look gives us some ideas, it is impossible to deny that. But the existence of a complexity is an undeniable fact. We can see that there are some extremely commonly used buttons. For example, the save button has the same style as a picture that is present in many applications and is now in people's minds. Considering this aspect, we can say that users can learn and remember the application more easily. But the simple music editor idea promised in the first pages seems not to be implemented well on this page. It still looks like a complex, hard-to-learn structure.

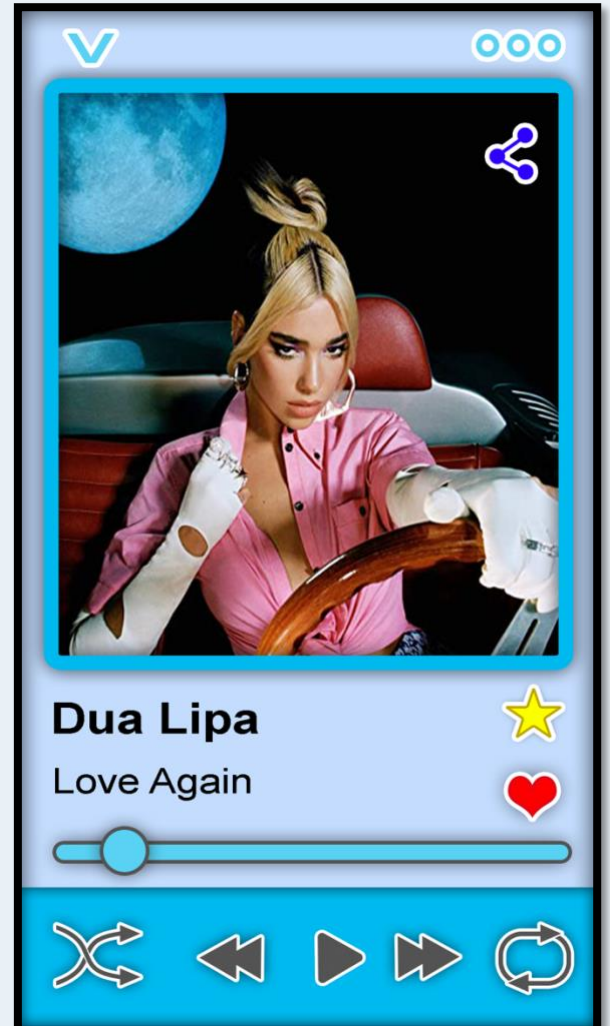
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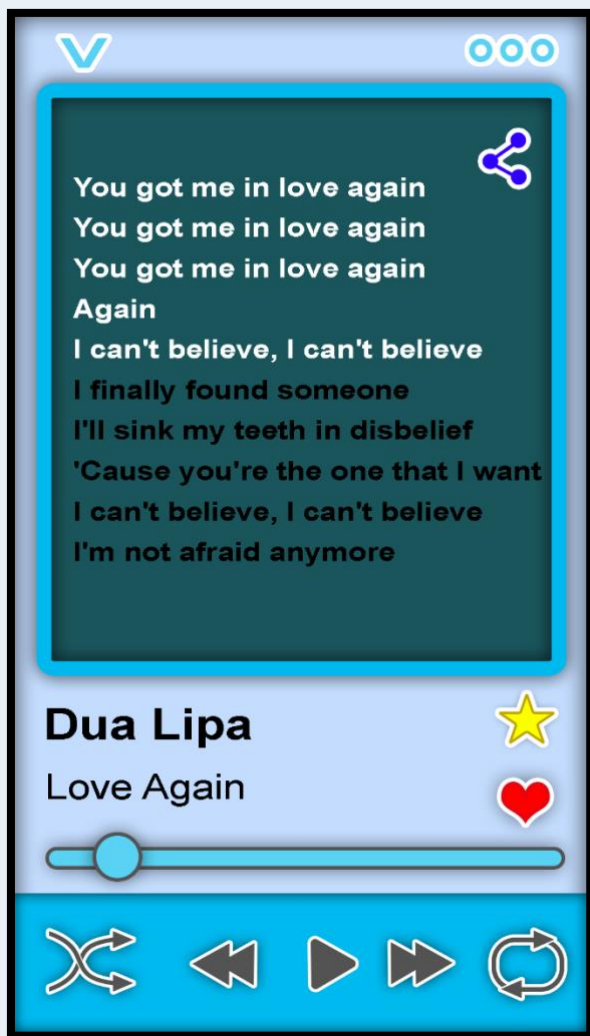


A login page UI mockup with a light blue background. At the top center is a dark blue circular icon with a white network pattern. Below it are two rounded rectangular input fields: the first is labeled 'username' with a person icon, and the second is labeled 'password' with a key icon. A blue 'Login' button is centered below the fields. At the bottom, there are two links: 'Forget password ?' and 'Create account'.

Login Page

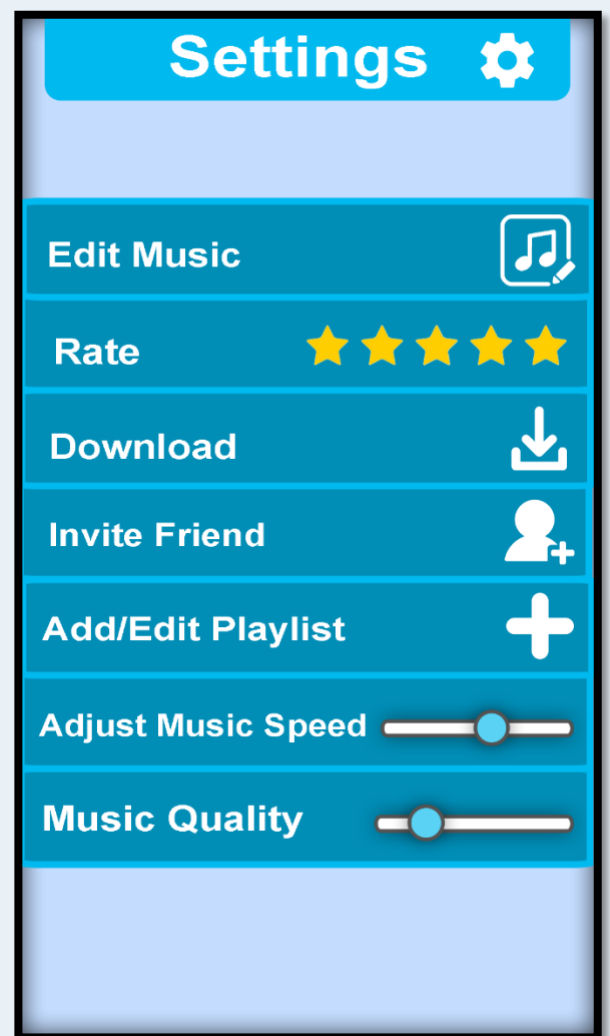
Music Listening
Page





Settings Page

Lyrics Page



My Playlist



Play

As It Was
Harry Styles



First Class
Jack Harlow



Wait For U
Future Featuring Drake & Tems



About Damn Time
Lizzo



Running Up That Hill
Kate Bush



Halden Anlamaz
Okan & Volkan



Love Story
Indila



MIDDLE OF THE NIGHT
Elley Duhé



Playlist Page

Music Upload
Page



Select Genre



Select Ad



Select Release Date



Edit Lyrics

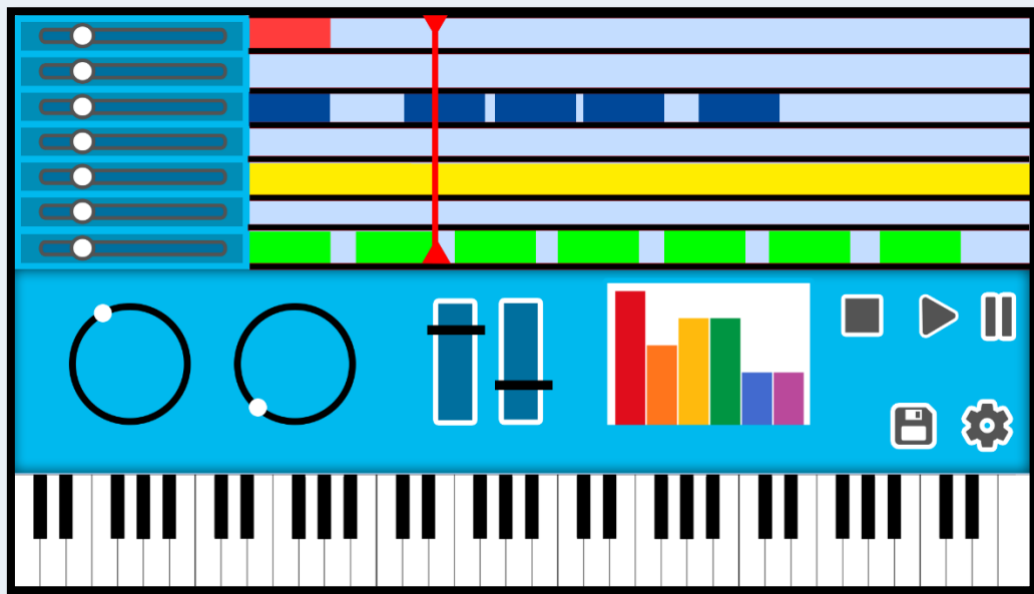


Share your thoughts

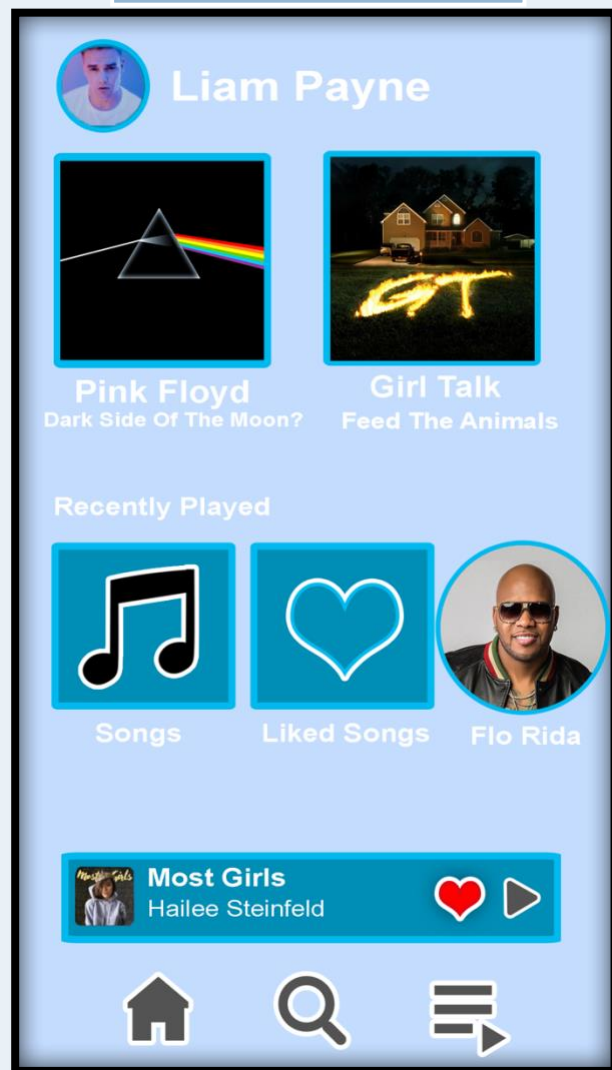


Upload





Music Editor Page
(Vertical)



Main Page

8.

Music Listening Page

When we examine this part, it is possible to see that there is a great similarity between our first prototype and the second one. It is possible to see that the general lines are preserved. We can say that since a more detailed prototype has been created, it has become easier to understand some details. Let's talk about what was added first. While the song is selected and listened to, the user can see the album cover of the song. When he clicks on the artist's name, he can view other songs of the artist. When you click on the text under the artist, that is, on the song playing, you can view the album containing that song. When you click the button at the bottom left, the album or playlist starts to play randomly. The button on the far right allows the song to be started again after the song ends. You can switch between the next or previous songs using the buttons in the middle. The song can be shared with other users with the button on the top right of the part where the album cover of the song is located.

In addition, it is up to the wishes of the users to like the song with the heart button and add it to the favorites section with the star. Some features that are difficult to understand in photography are included in our system. These are someone scrolling feature. When the user scrolls down the page, they can view the lyrics of the song. The place where the performer momentarily sings is colored with a different color. In this way, the singer can be accompanied. If the user scrolls up the page, they will be able to watch the video of the song. The extremely meaningless button on the first prototype has been removed in this design. That button is buried elsewhere in the system. In this way, a simpler and more understandable screen has been created.

Login Page

The login page is almost the same. The logo of the application has been added to the upper part. Some functions specified as buttons in the low-fidelity drawing have been converted to text, resulting in a simpler interface. A problem that remained undecided in the first designs was clarified. It is no longer necessary for listeners and artists to log into the system from separate interfaces. Both types of users have the right to access the system through a single screen. If the user wishes, he can also create a new account on the same screen. In fact, the user type will be decided on the account creation screen. Additionally, "Forget Password?" with the user in mind. part was created. In this way, the necessary support for the user has been given by us.

Settings Page

This page is accessed by 3 dots on the music listening screen, which we mentioned as the first screen. The initial design of this page has an extremely disturbing design. The fact that the buttons that can serve the same function are located in different places may distract the user. For example, there are two bars. What they do is not specified in the Low-Fidelity drawings. Thanks to our latest design, the meaning of each function is supported by both texts and visuals. In addition, there are texts at the top that show the environment the user is in. In this way, the user will know where he is. If we talk about the function of the individual menu. The song listened to with "Edit Music" can be edited by users. So they can remix. In the "Rata"

section below, the listened song can be rated by the users. Other users will be able to view the average scores of the songs. The "Download" section allows users to download the song to their devices. In this way, users will be able to listen to the songs even when they are offline. The song listened to with "ADD/Playlist" can be added to a playlist requested by the user. Finally, the speed and quality of the song can be changed from within this menu.

Playlist Page

Low fidelity and final design are almost identical. There is no big change. Songs downloaded in the playlist can be played shuffled or sequentially. In fact, the songs in the playlist can be removed from the list or downloaded to the device with the 3 dots on the right.

Music Upload Page

Since the positions of the objects in our low-fidelity drawing as screens are insufficient in terms of aesthetics and seem very confusing, we have corrected these deficiencies in the final design. As a result of the changes we have made, our interface has become more understandable and organized. It can be used by users who have permission to upload songs. The song to be uploaded to the field in the first part of the page can be uploaded to the system with "Add-Drop" or by selecting the file path in the system. This area actually solved some of the problems in the first design very seriously. Only with this field, many materials can be uploaded to the system. Like the picture or video of the song. In this way, the page has been saved from confusion in terms of design. Other features are clearly stated in the menu.

Music Editor Page

Since the first design we made seemed suitable for us in general, we did not find it appropriate to make major changes. In this section, users with an artist profile will be able to create their own music. We talked about the complexity of music editing programs earlier in the project. The editor we designed has a very simple interface to learn and use. In other words, it has a wide variety of users from amateur artists to professionals. The created song can be saved by the user and the user will be able to continue his work from where he left off, even if he exits the system and comes back after a while. The user can even upload the songs he has composed for decision making into the application. In this way, it can reach many different users.

Main Page

No changes have been made to the main page. In fact, Spotify was used as an example for this design. It is possible to see that there are designs that are extremely close to each other. This screen is the first screen that welcomes users after login. All main operations depart from this screen. Song search is done with this screen. You can go to the created playlists with this screen. At the same time, this page can be accessed in the lists that the application recommends completely for people.

Finally, as a result of our research, we observed that there are 4 prototype types, the list is as follows;

- Rapid (Throwaway) prototyping
- Evolutionary prototyping
- Incremental prototyping
- Extreme prototyping

The prototype we implemented is a mix of Evolutionary prototyping and incremental prototyping.

Tanımları ise şöyledir.

Evolutionary prototyping

A functional piece of software, not just a simulation, distinguishes an evolutionary prototype from the conventional idea of a software prototype. Beginning with a product that merely satisfies known system requirements constitutes evolutionary prototyping. It won't fulfill all of the client's requirements, but it's a nice place to start. As the stakeholders' understanding of these criteria grows, more features and functions can be introduced. That is how this prototype is "evolving,"

An evolutionary prototype's initial iteration is comparable to a minimum viable product (MVP), or software that includes only the bare minimum of features necessary to be useful. The difference is in how those initial version's requirements are chosen.

Incremental prototyping

Enterprise software with numerous modules and components that may only be tangentially related to one another benefits from incremental prototyping. In incremental prototyping, numerous little prototypes are constructed concurrently. The various prototypes are assessed and improved separately, combined into a comprehensive whole, and then examined for consistency in vocabulary, behavior, and look-and-feel.

With incremental development, there is a chance that the prototypes could look and feel so differently that the modules will appear to be entirely different software applications. To achieve consistency, the design team must establish certain guiding principles in advance and keep the designers on a leash.

As a group, when we re-examined the decisions we made at the beginning, we saw that we had shortcomings and we developed our project further by brainstorming on them. With each and every feedback we gave to each other, our project moved to a different stage and we reached a very good point as each idea was better than the previous one. While making our project, we tried to pay attention to the general design principles. Our prototypes gained very successful and functional features in terms of design and user experience. When we reached the final stage of our project, we have obtained an application that can be used very easily and that everyone who can do their job will want to use it.

9. Task Based User Evaluation Problem Summary

Problem No	The Problem	Solution	Usability Heuristics	Severity
1	Music Editor Page does not have required labels for user to understand the app	A small training button can be added to the top left of the page and what they	Responsiveness	Major Problem
2	No color match	Colors can be redefined	Aesthetic Integrity	Cosmetic Problem
3	Music Editor Page does not have undo button	Undo button can be added	Forgiveness	Minor Problem

What moves users emotionally? What moves users emotionally?

Listening to music, rated the music they listen to, makes people emotionally active, besides, sharing a favorite song with their loved ones or sharing a song and commenting on it makes people emotionally active.

What features do users find frustrating or difficult to use?

Users are annoyed that the application they use is not well optimized and suddenly slows down . In addition, they are disturbed by the fact that the application makes it difficult for the user while fulfilling the promised functions.

What features do they most enjoy? Why?

Users enjoy the most simple use of our app and the equalizer where the only limit is their imagination. The reason for this is that they get what they want quickly with ease of use and they can make very fun mixes from the equalizer.

What problems does the app solve for its users? What doesn't it solve?

The application gives users the ability to access the music they want quickly, easily and securely. In addition, it offers the opportunity to share those songs with friends and discover popular songs thanks to scoring and scoring.