SPOTIFY PLAYER AND RECOMMENDATION BOT

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

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ABSTRACT

The proposed system is a versatile music bot designed using UiPath to enhance the user experience on Spotify. This bot offers two main functionalities: it allows users to search for and play specific songs by providing the artist name and song title, and it recommends songs based on the user's mood. If users are uncertain about their music preferences, the bot interacts with them through mood-related queries and suggests songs tailored to their emotional state. By leveraging the Spotify website, the bot automates the music search and playback process, delivering a personalized experience with minimal user effort. This system eliminates the hassle of manually searching for songs, saving time while ensuring users enjoy a mood-appropriate playlist. Additionally, its intuitive interface and automation capabilities make it accessible and user-friendly for all audiences. With its seamless integration and focus on personalization, the bot transforms the way users interact with music streaming services, creating a perfect blend of efficiency and entertainment.

ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavor to put forth this report. Our sincere thanks to our Chairman **Thiru. S.Meganathan, B.E., F.I.E.,** our Vice Chairman **Mr. M.Abhay Shankar, B.E., M.S.,** and our respected Chairperson **Dr. (Mrs.) Thangam Meganathan, M.A., M.Phil., Ph.D.,** for providing us with the requisite infrastructure and sincere endeavoring in educating us in their premier institution.

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Harshini Akshaya (220701088)

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LIST OF ABBREVIATIONS

ABBREVIATION	ACCRONYM
RPA	Robotic Process Automation
URL	Uniform Resource Locator
MM/dd/yyyy	Excel Application Scope
EPS	Excel Process Scope

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Music streaming has become an integral part of our daily lives, offering access to millions of songs at our fingertips. However, navigating through extensive libraries on platforms like Spotify can be time-consuming and overwhelming. To address this challenge, we propose a music bot developed using UiPath that automates music search, playback, and recommendations. This bot simplifies the user experience by leveraging web scraping and web recording techniques to interact directly with the Spotify web interface, eliminating the need for manual effort.

The bot operates through two primary functions: playing specific songs and recommending music based on the user's mood. Users can input the name of an artist or song, and the bot navigates Spotify's web interface to find and play the requested track. Alternatively, for users who are unsure of what to listen to, the bot asks mood-related questions and suggests songs that align with the user's emotional state. By automating these processes, the system delivers a personalized and time-efficient music experience.

Advanced techniques like web scraping allow the bot to extract and analyze data directly from the Spotify web interface, identifying song details and trends to improve its recommendations. Web recording is utilized to replicate user actions, such as searching for songs and playing music, enabling a seamless integration with Spotify without the need for APIs.

Additionally, email automation is incorporated to notify users about mood-based playlists, updates, or curated recommendations, further enhancing the user experience.

This innovative system showcases the power of UiPath in creating intelligent bots that perform complex tasks. By eliminating the dependency on APIs and focusing on web automation, the bot demonstrates a unique approach to solving real-world problems in the entertainment domain. It not only simplifies music streaming but also highlights the potential of automation tools in enhancing user satisfaction and engagement.

1.2 OBJECTIVE

To develop an intelligent bot using UiPath that interacts with Spotify to search and play songs based on user input. The bot allows users to provide an artist or song name for playback or determine a song recommendation by analyzing the user's mood. By combining automation and personalized music suggestions, the bot aims to enhance the listening experience, making it intuitive and tailored to user preferences.

1.3 EXISTING SYSTEM

Currently, users manually search for songs or playlists on platforms like Spotify based on their preferences or mood. This process requires direct input, navigation, and decision-making. While Spotify provides algorithm-based recommendations, it lacks an interactive bot that can intuitively engage with users to play specific songs or suggest music based on mood. There's no automated solution integrating natural interaction for both song search and mood-based recommendations in a seamless manner.

1.4 PROPOSED SYSTEM

The proposed system is a UiPath-based bot that automates music selection and playback on Spotify. Users can provide an artist name or song title, and the bot will search Spotify and play the desired track. If users are unsure of what to listen to, the bot will engage with them by asking about their current mood and suggesting a song accordingly. By eliminating the need for manual searching, it enhances accessibility, saves time, and ensures users enjoy music tailored to their preferences or emotions.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

The landscape of music consumption has witnessed a transformative shift with the integration of automation technologies. This literature review aims to explore existing research and scholarship surrounding automated music recommendation systems, focusing specifically on projects akin to the proposed music recommendation system.

EVOLUTION OF MUSIC DISCOVERY

Understanding the evolution of music discovery is crucial to appreciate the significance of automated systems. Traditional methods involved manual exploration of music libraries, resulting in time-consuming and less personalized experiences. The emergence of music recommendation engines marked a shift towards automated suggestions, yet often lacked the depth of personalization sought by modern music enthusiasts.

AUTOMATION TECHNOLOGIES IN MUSIC RECOMMENDATION

The integration of automation technologies in music recommendation systems signifies a paradigm shift. These technologies facilitate the automation of repetitive tasks involved in data scraping from music platforms, enabling efficient extraction of comprehensive song details. Studies have highlighted the benefits of automation, emphasizing its role in enhancing accuracy, reducing processing time, and ensuring a consistent flow of music information.

USER-CENTRIC MUSIC EXPLORATION

Contemporary music recommendation systems prioritize user preferences. Research indicates a growing demand for personalized music feeds tailored to individual interests. Projects incorporating user-centric design principles emphasize providing choices such as genre-specific recommendations, latest releases, or tailored playlists, aligning with diverse user preferences.

CASE STUDIES AND PROJECTS IN AUTOMATED MUSIC RECOMMENDATION

Examining existing projects within automated music recommendation provides insights into successful implementations and areas for improvement. Notable case studies shed light on how automation technologies have enhanced music discovery, offering valuable benchmarks for the development of projects like the proposed music recommendation system.

USER EXPERIENCE AND INTERFACE DESIGN

Research underscores the significance of user experience (UX) and interface design in the success of automated music recommendation systems. Intuitive interfaces offering customization options and seamless interactions contribute to user satisfaction and engagement, guiding best practices in interface design for diverse user preferences.

CHALLENGES IN AUTOMATED MUSIC RECOMMENDATION

While automated music recommendation systems offer advantages, challenges exist such as algorithmic bias, information overload, and ethical considerations in content scraping. Addressing these challenges is crucial to developing robust systems that prioritize accuracy, fairness, and user satisfaction.

FUTURE DIRECTIONS AND INNOVATIONS

Anticipating the future of automated music recommendation involves exploring emerging technologies such as machine learning and natural language processing (NLP). Understanding their integration potential in projects similar to the proposed music recommendation system is crucial for staying ahead in music discovery trends.

CONCLUSION

This literature review provides a foundational understanding of automated music recommendation systems. By examining the evolution, challenges, case studies, and future directions, it lays the groundwork for innovative systems that redefine how users engage with and discover music content.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. The system flow diagram for this project is in Fig. 3.1.

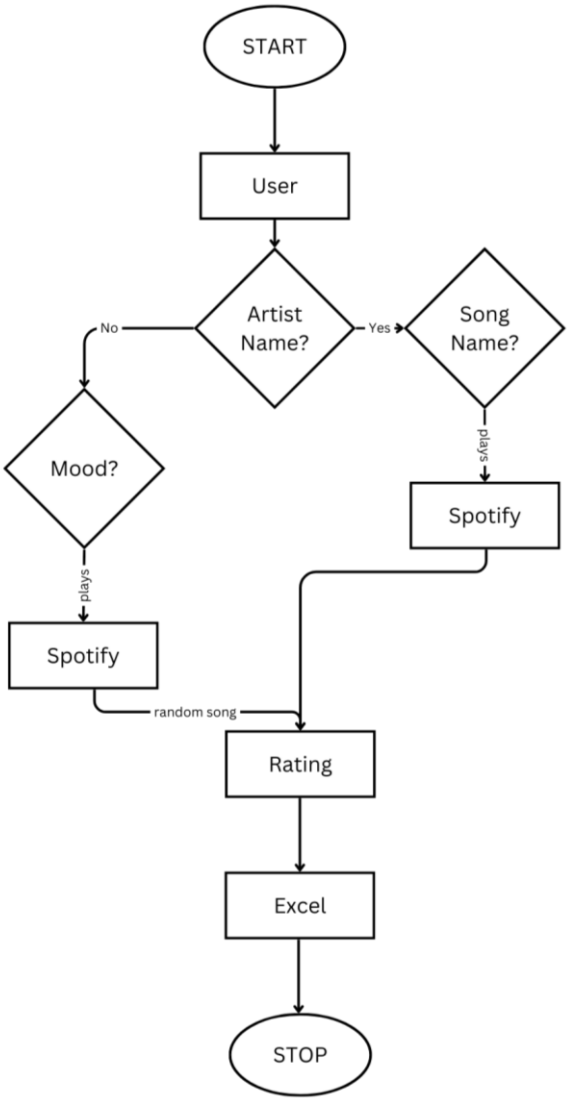


Fig 3.1 System Flow Diagram

3.2 ARCHITECTURE DIAGRAM

An architecture diagram is a graphical representation of a set of concepts, that are part of an architecture, including their principles, elements and components. The architecture diagram for this project is in Fig. 3.2.

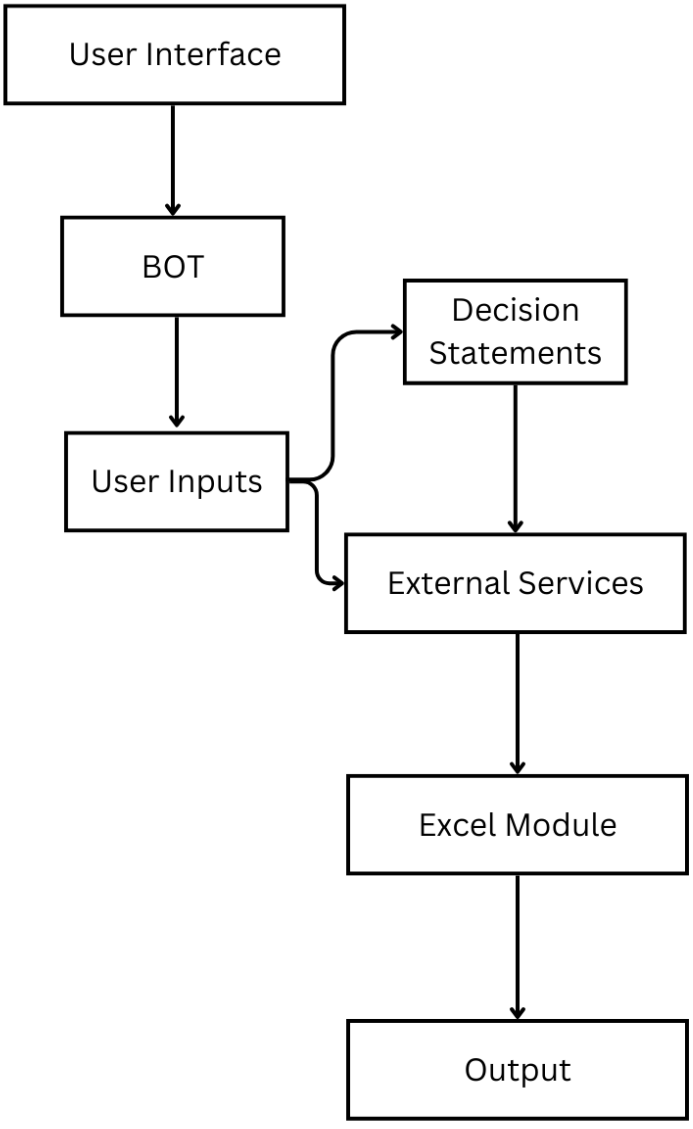


Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram because it describe and s how in what order a group of objects works together. The sequence diagram for this project is in Fig. 3.3.

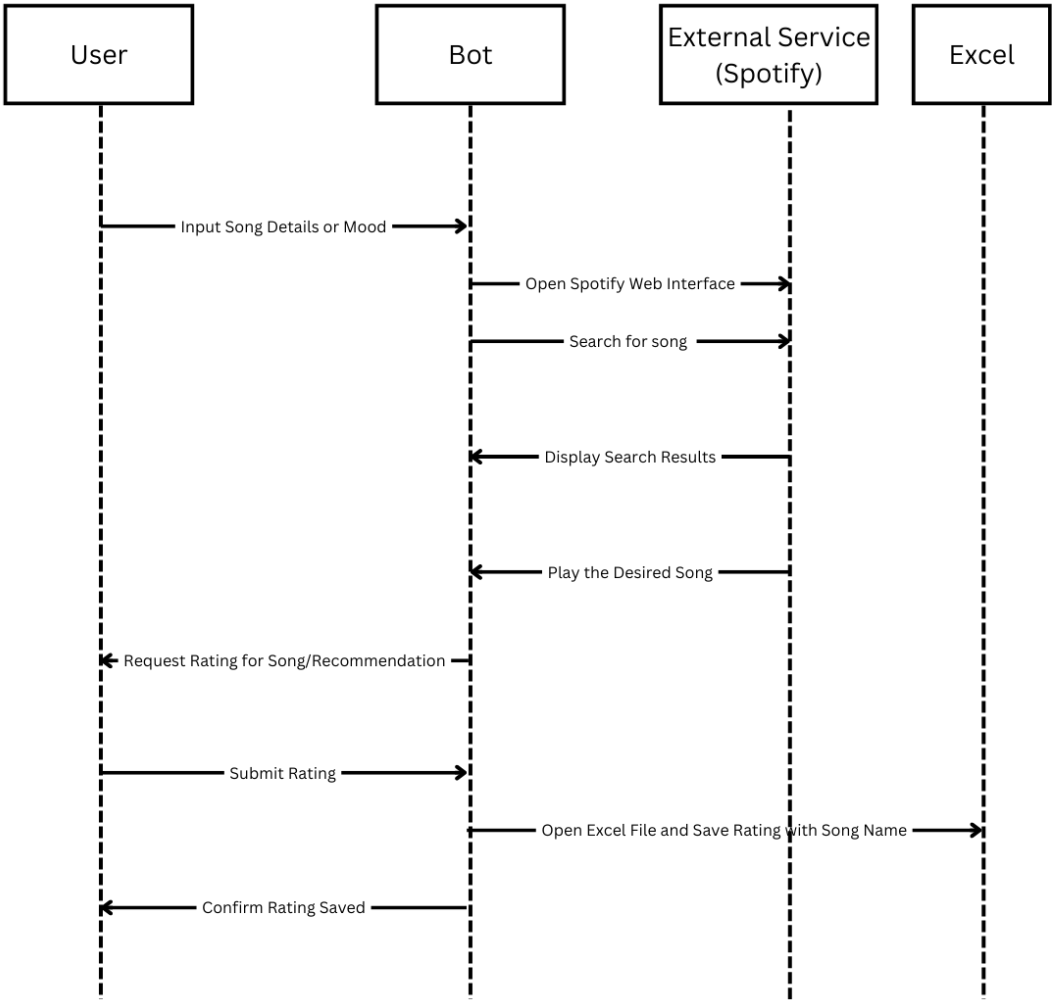


Fig 3.3 Sequence Diagram

CHAPTER 4

PROJECT DESCRIPTION

"The Spotify Music Player and Recommendation Bot" is an innovative Robotic Process Automation (RPA) project designed to enhance the music listening experience. Built using UiPath, this intelligent bot seamlessly integrates with Spotify to search, play, and recommend songs based on user preferences and mood, offering an engaging and personalized musical journey.

4.1. MODULES:

4.1.1. INPUT HANDLING AND INITIALIZATION:

4.1.1.1. Song/Artist Input:

- Accept user input for the desired song or artist name.

4.1.1.2. Mood Input:

- Ask the user about their current mood if no song or artist is specified.
- Categorize the mood to suggest appropriate songs.

4.1.1 SPOTIFY INTERACTION:

4.1.2.1 Song Search and Playback:

- Search Spotify for the specified song or artist.
- Automatically play the selected track.

4.1.2.2 Mood-Based Recommendation:

- Analyse mood input and suggest songs from pre-defined mood categories.

4.1.2 RESULT MANAGEMENT:

4.1.3.1 Playback Tracking:

- Provide real-time updates on the playback status
- Log the songs played or recommended during the session.

4.1.3.2 History Maintenance:

- Maintain a record of user interactions and recommendations for future insights.

CHAPTER 5

OUTPUT SCREENSHOTS

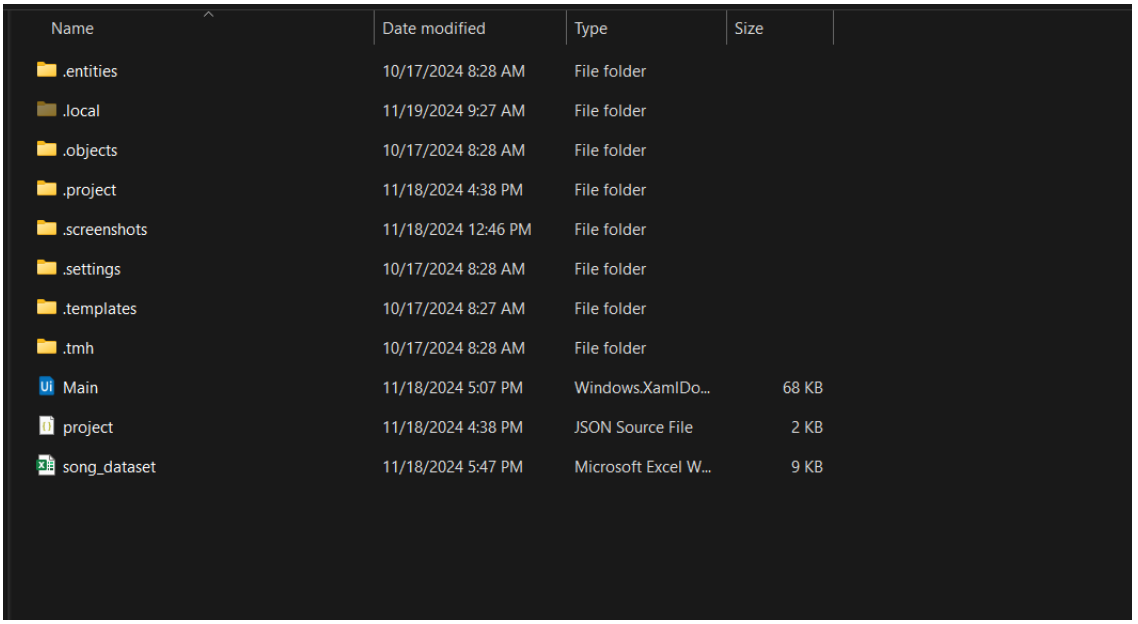


Fig 5.1 Project Folder

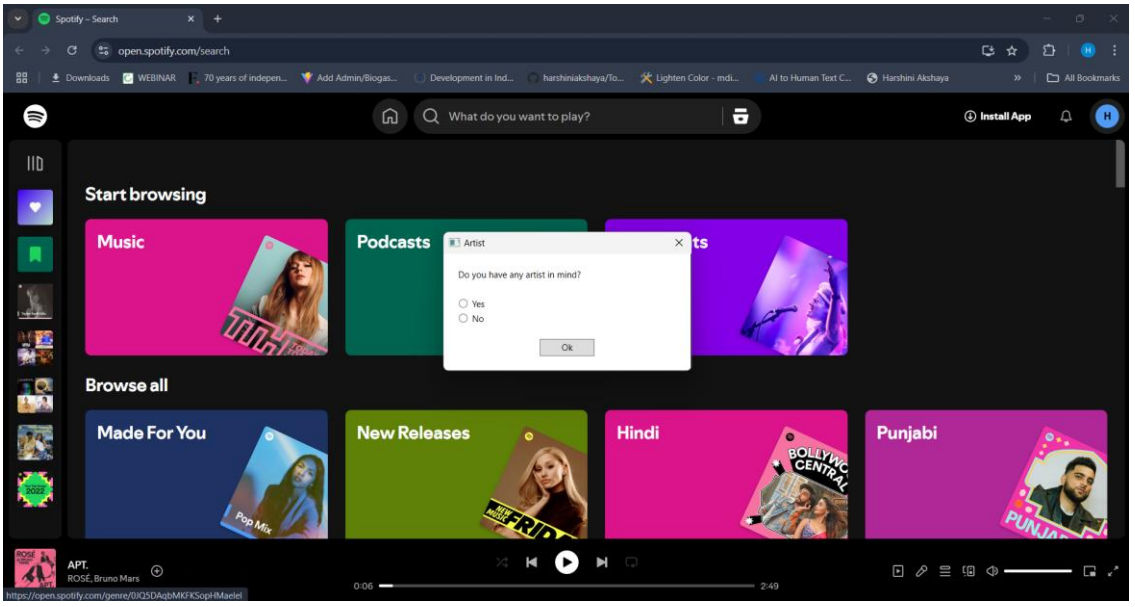


Fig 5.2. User input for artist selection

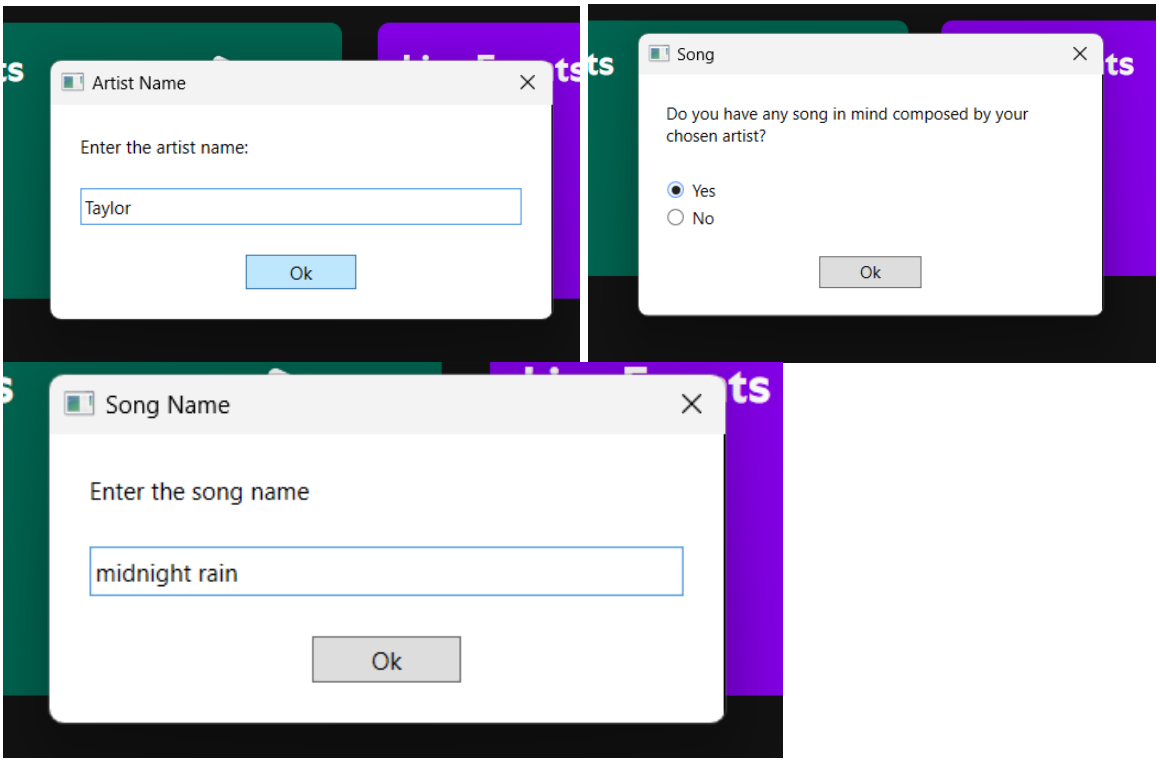
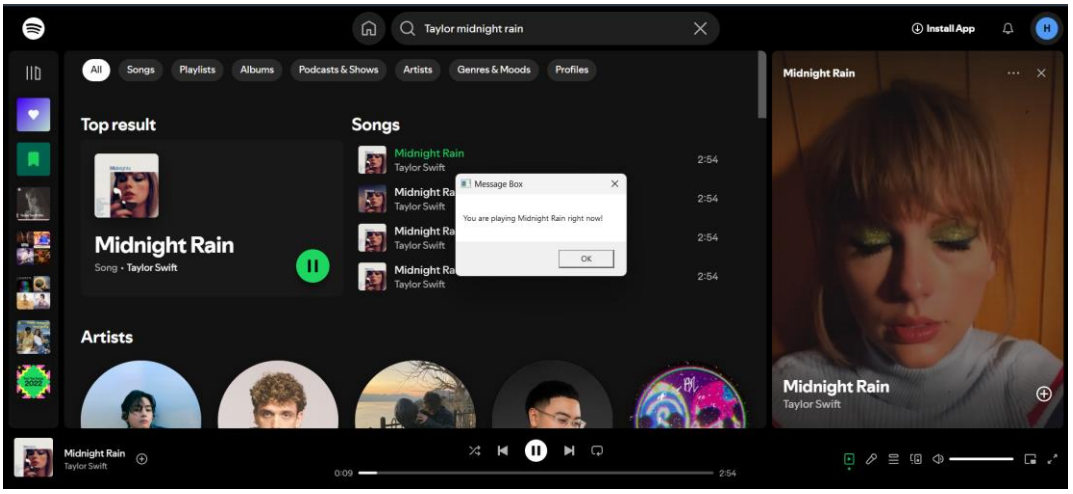


Fig 5.3. User input for song selection



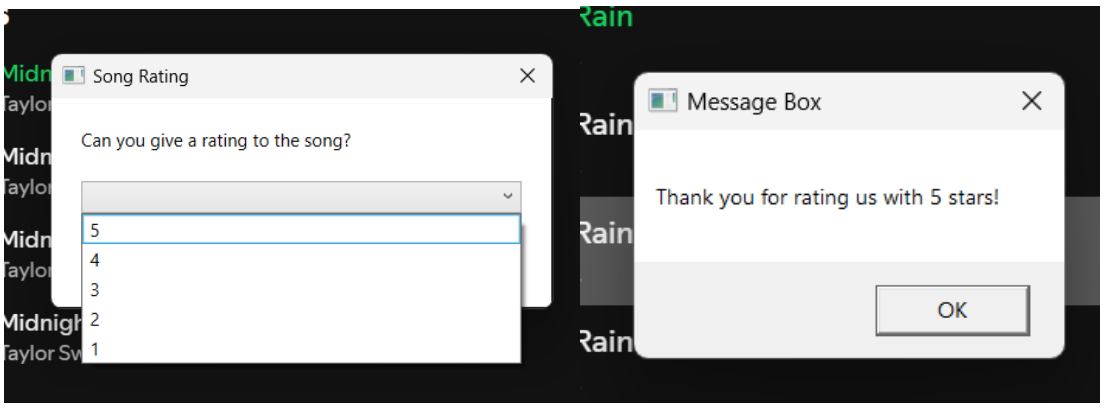


Fig 5.4 User input for rating (Spotify Player)

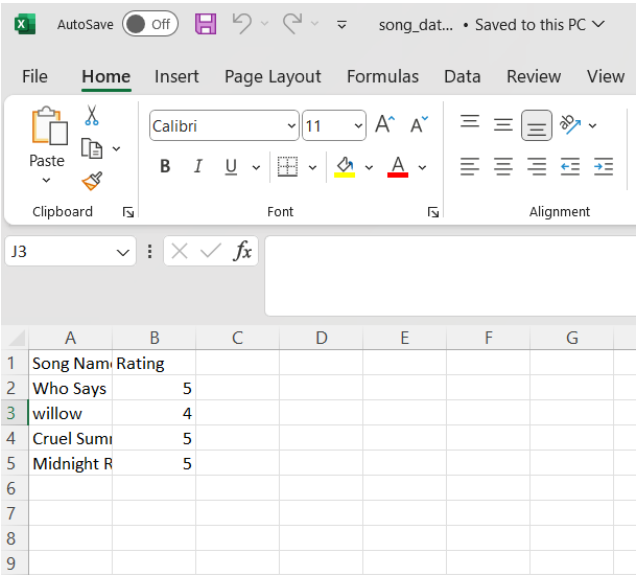


Fig 5.5 Excel sheet with song name and ratings

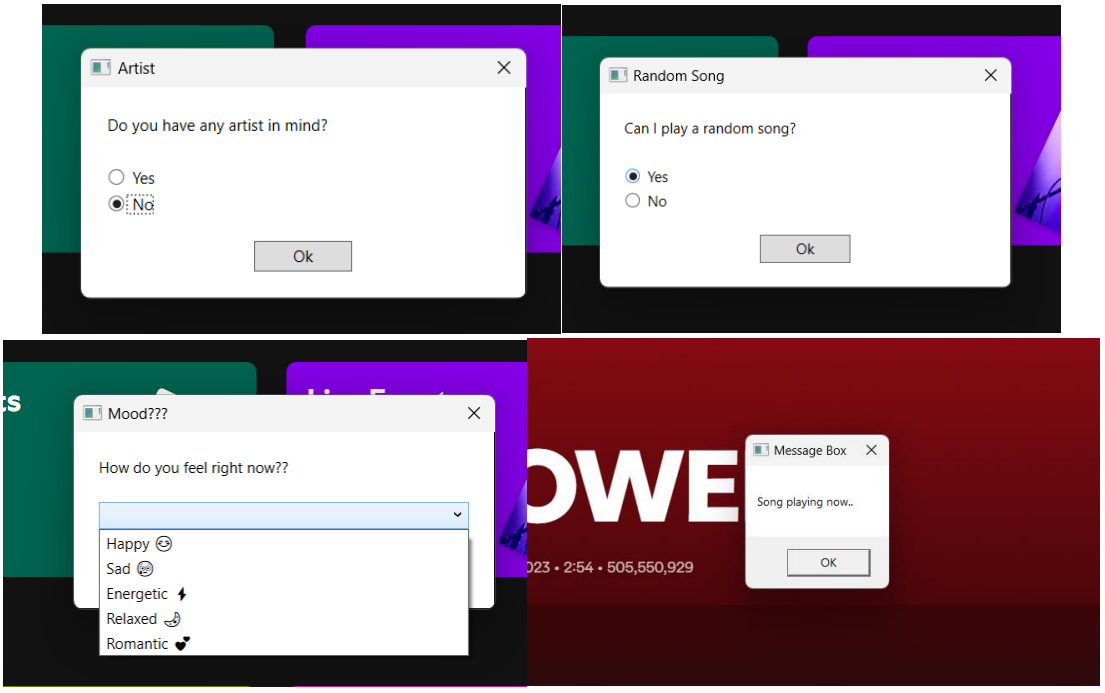


Fig 5.6 User input for mood selection

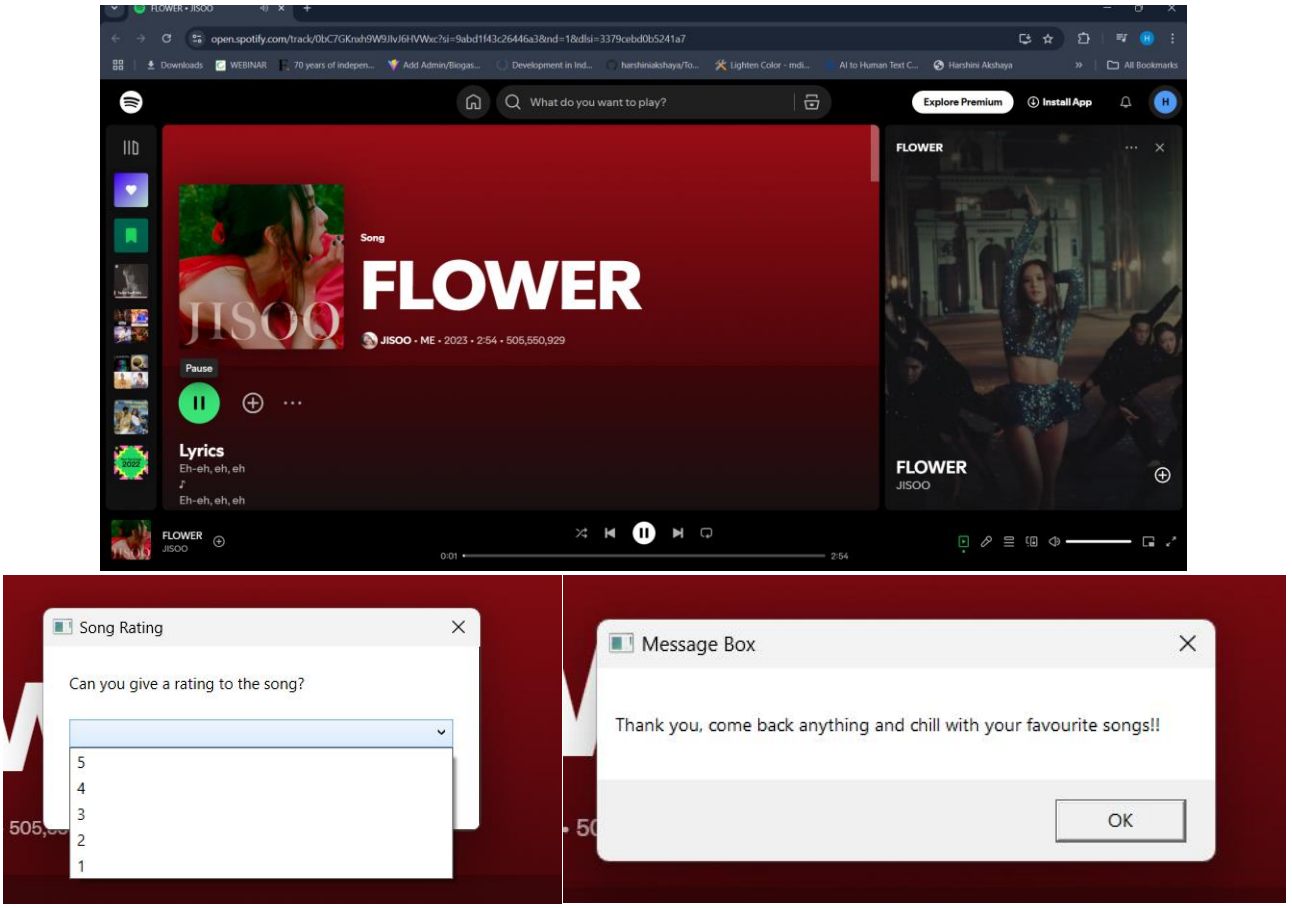


Fig 5.7 User Inputs (For Spotify recommendation)

	A	B	C	D	E
1	Song Nam	Rating			
2	Who Says	5			
3	willow	4			
4	Cruel Sumı	5			
5	Midnight R	5			
6	FLOWER	3			
7					
8					
9					
10					
11					

Fig 5.8 Excel sheet with song name and ratings

CHAPTER 6

CONCLUSION

"The Spotify Music Playback and Recommendation Bot" enhances the music listening experience by leveraging UiPath's Robotic Process Automation (RPA) to automate and personalize song selection and playback. This innovative solution integrates seamlessly with Spotify, enabling users to play specific tracks or receive tailored recommendations based on their mood.

The bot's real-time updates and intuitive interaction provide a user-friendly experience, making music exploration effortless and enjoyable. While it excels in automating repetitive tasks, challenges may arise in accurately interpreting complex emotional inputs for recommendations. Regular updates and mood categorization refinements are essential to improving its accuracy and adaptability.

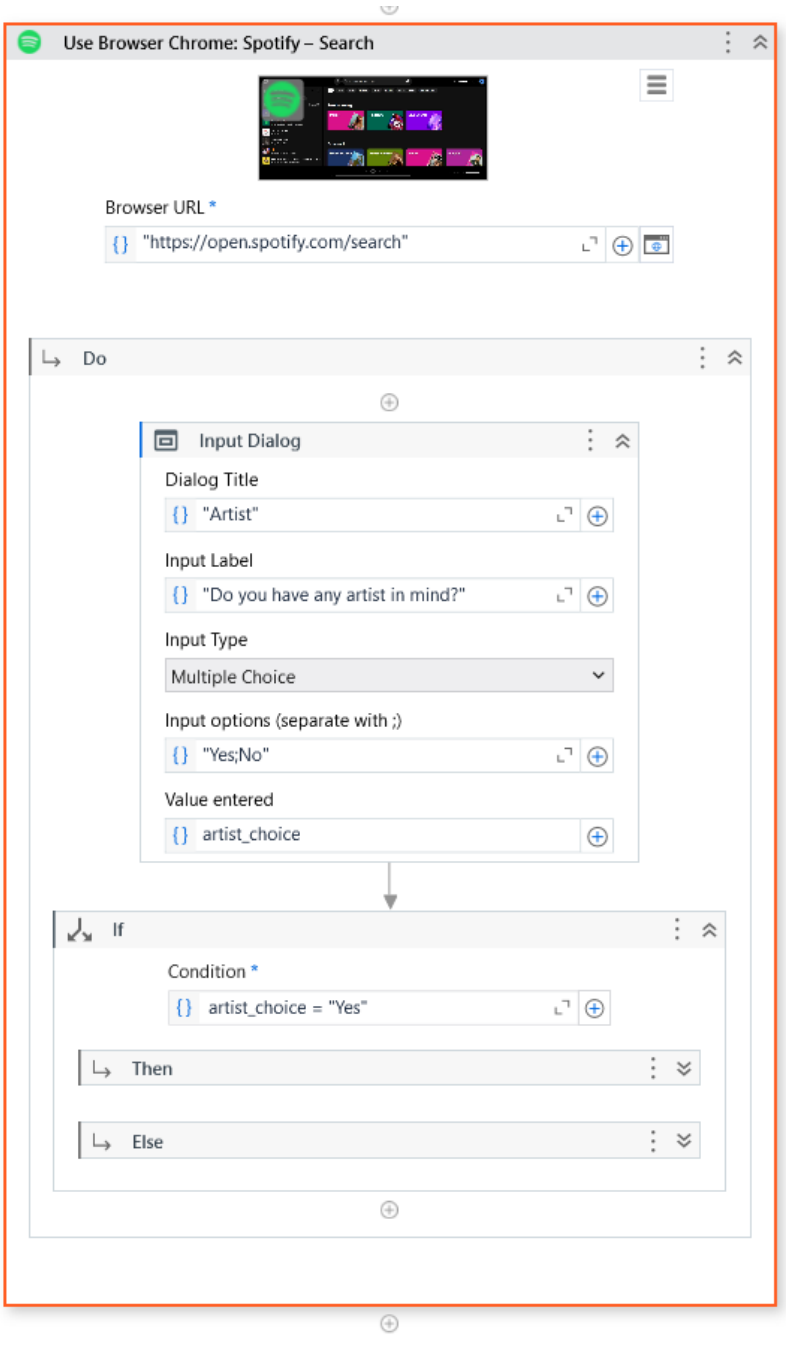
The successful implementation of this bot highlights the potential of RPA in creating intelligent and engaging user experiences, setting a strong foundation for future advancements in personalized entertainment systems.

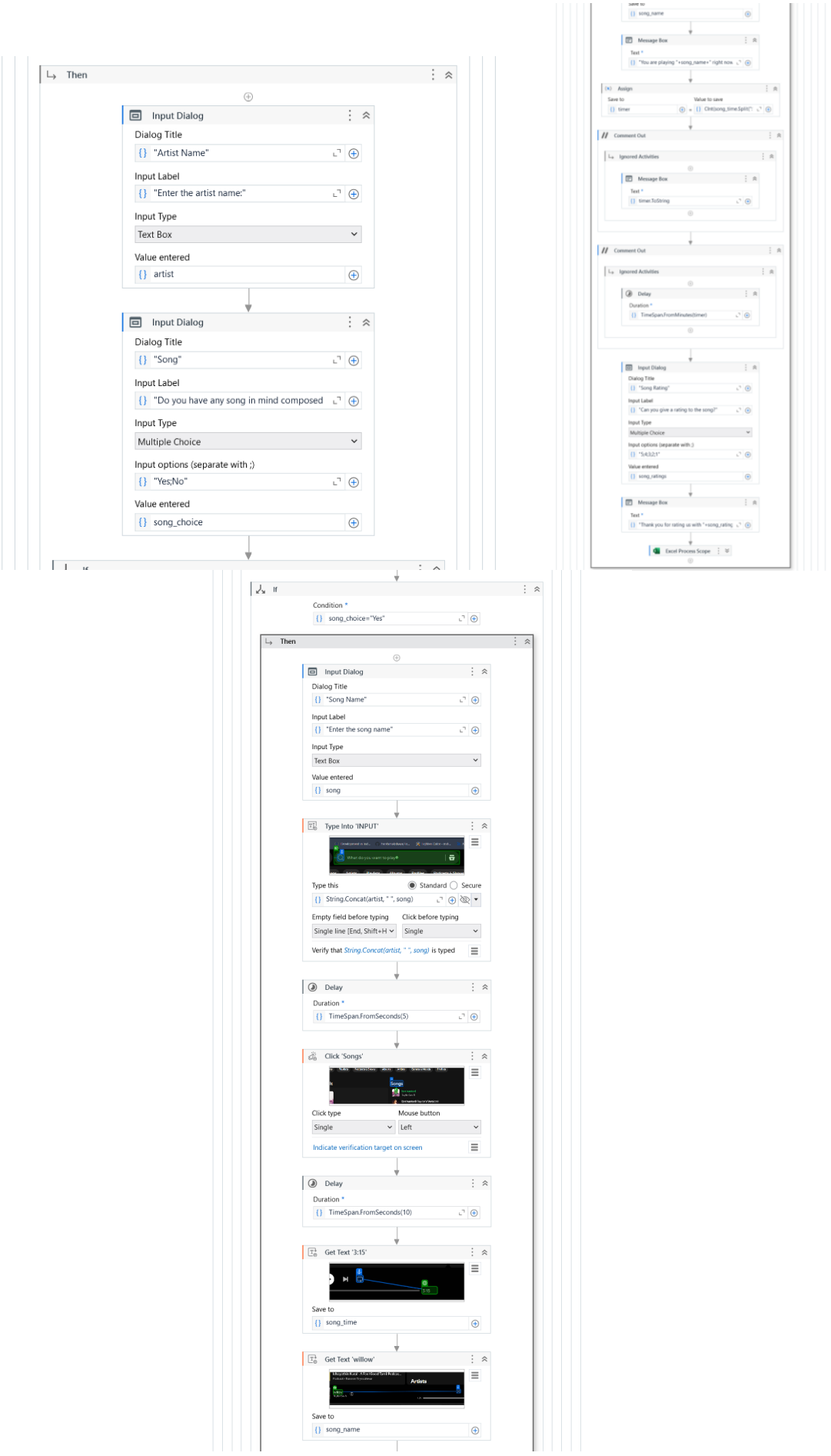
More features that can be introduced in the coming future are :

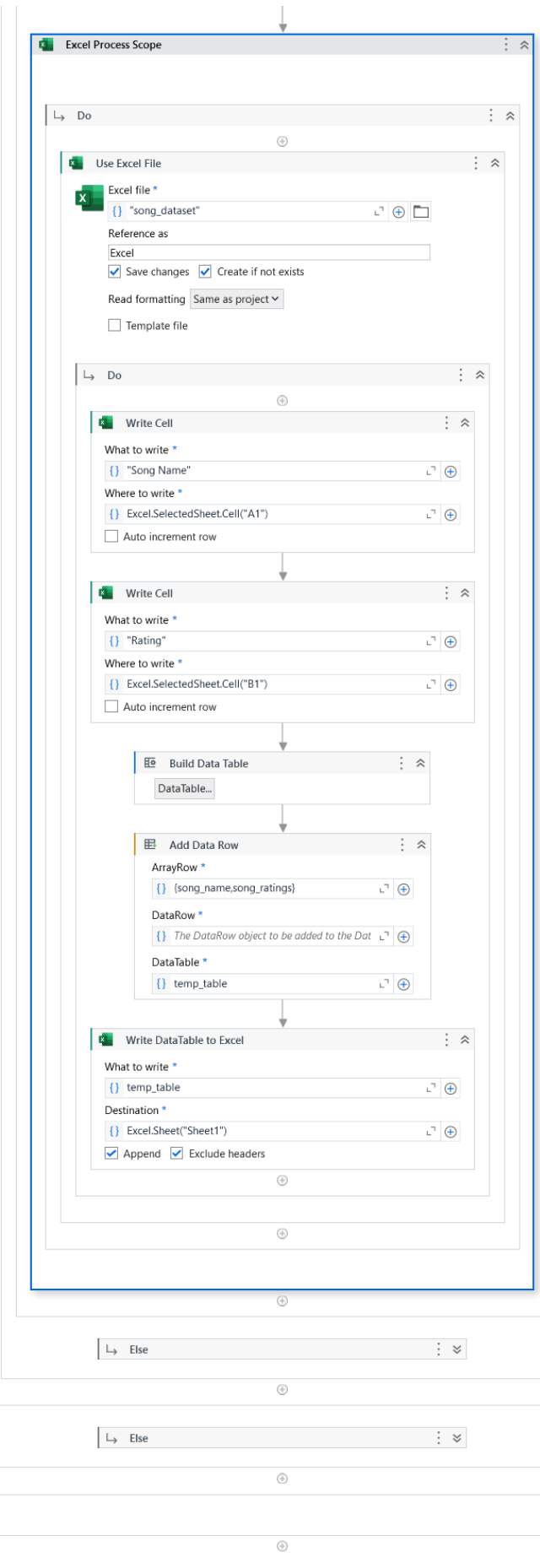
- Interactive Infographics.
- User choosable music categories.
- Personalized music recommendation.
- Advanced searching feature.
- Multilingual support

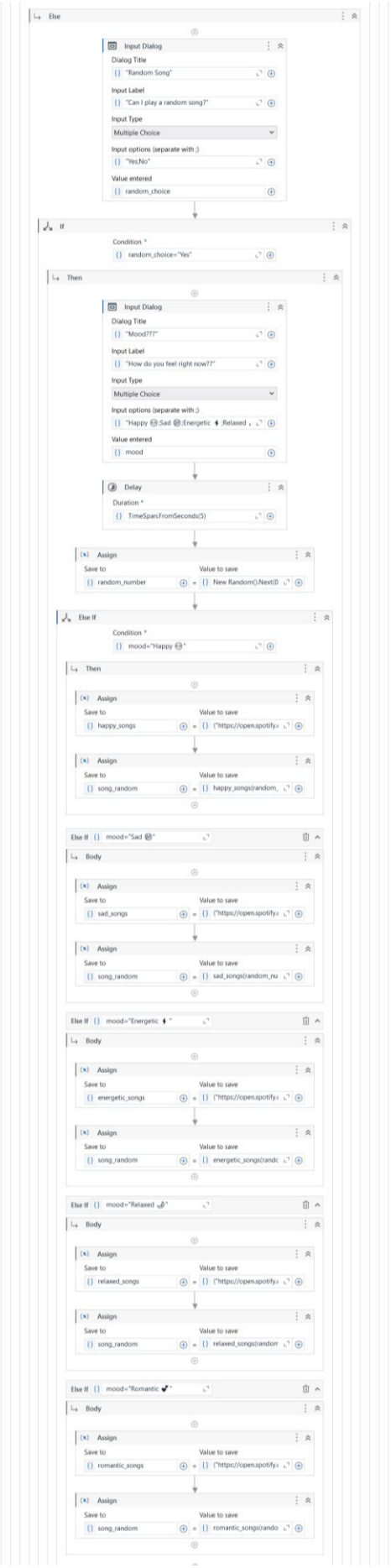
APPENDIX

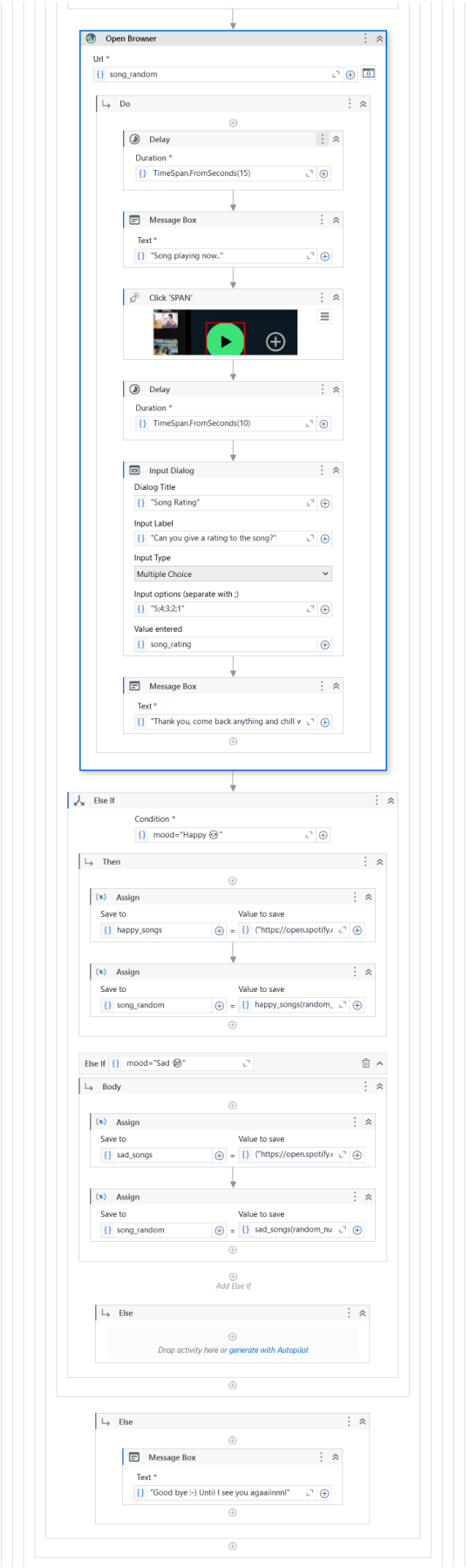
PROCESS WORK FLOW




Then
Input Dialog
Dialog Title
"Artist Name"
Input Label
"Enter the artist name:"
Input Type
Text Box
Value entered
artist
Input Dialog
Dialog Title
"Song"
Input Label
"Do you have any song in mind composed
Input Type
Multiple Choice
Input options (separate with ;)
"Yes;No"
Value entered
song_choice
If
Condition *
song_choice="Yes"
Then
Input Dialog
Dialog Title
"Song Name"
Input Label
"Enter the song name"
Input Type
Text Box
Value entered
song
Type Into 'INPUT'
Type this
Standard
Secure
String.Concat(artist, " ", song)
Empty field before typing
Click before typing
Single line [End, Shift+H
Single
Verify that String.Concat(artist, " ", song) is typed
Delay
Duration *
TimeSpan.FromSeconds(5)
Click 'Songs'
Click type
Mouse button
Single
Left
Indicate verification target on screen
Delay
Duration *
TimeSpan.FromSeconds(10)
Get Text '3:15'
Save to
song_time
Get Text 'willow'
Artists
Save to
song_name


Excel Process Scope
Do
Use Excel File
Excel file *
"song_dataset"
Reference as
Excel
Save changes
Create if not exists
Read formatting
Same as project
Template file
Do
Write Cell
What to write *
"Song Name"
Where to write *
Excel.SelectedSheet.Cell("A1")
Auto increment row
Write Cell
What to write *
"Rating"
Where to write *
Excel.SelectedSheet.Cell("B1")
Auto increment row
Build Data Table
DataTable...
Add Data Row
ArrayRow *
{song_name,song_ratings}
DataRow *
The DataRow object to be added to the Dat
DataTable *
temp_table
Write DataTable to Excel
What to write *
temp_table
Destination *
Excel.Sheet("Sheet1")
Append
Exclude headers
Else
Else


Else
Input Dialog
Dialog Title
"Random Song"
Input Label
"Can I play a random song?"
Input Type
Multiple Choice
Input options (separate with ;)
"Yes;No"
Value entered
random_choice
If
Condition *
random_choice="Yes"
Then
Input Dialog
Dialog Title
"Mood???"
Input Label
"How do you feel right now??"
Input Type
Multiple Choice
Input options (separate with ;)
"Happy ;Sad ;Energetic ;Relaxed
Value entered
mood
Delay
Duration *
TimeSpan.FromSeconds(5)
Assign
Save to
random_number
Value to save
New Random().Next(0
Else If
Condition *
mood="Happy "
Then
Assign
Save to
happy_songs
Value to save
Assign
Save to
song_random
Value to save
happy_songs(random_
Else If
mood="Sad "
Body
Assign
Save to
sad_songs
Value to save
Assign
Save to
song_random
Value to save
sad_songs(random_nu
Else If
mood="Energetic "
Body
Assign
Save to
energetic_songs
Value to save
Assign
Save to
song_random
Value to save
energetic_songs(randc
Else If
mood="Relaxed "
Body
Assign
Save to
relaxed_songs
Value to save
Assign
Save to
song_random
Value to save
relaxed_songs(random
Else If
mood="Romantic "
Body
Assign
Save to
romantic_songs
Value to save
Assign
Save to
song_random
Value to save
romantic_songs(rando


Open Browser
Url *
song_random
Do
Delay
Duration *
TimeSpan.FromSeconds(15)
Message Box
Text *
"Song playing now.."
Click 'SPAN'
Delay
Duration *
TimeSpan.FromSeconds(10)
Input Dialog
Dialog Title
"Song Rating"
Input Label
"Can you give a rating to the song?"
Input Type
Multiple Choice
Input options (separate with ;)
"5;4;3;2;1"
Value entered
song_rating
Message Box
Text *
"Thank you, come back anything and chill v
Else If
Condition *
mood="Happy 😊"
Then
Assign
Save to
Value to save
happy_songs
{"https://open.spotify.
Assign
Save to
Value to save
song_random
happy_songs(random_
Else If
mood="Sad 😢"
Body
Assign
Save to
Value to save
sad_songs
{"https://open.spotify.
Assign
Save to
Value to save
song_random
sad_songs(random_nu
Add Else If
Else
Drop activity here or generate with Autopilot
Else
Message Box
Text *
"Good bye :-) Until I see you agaaiinnn!"

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6.Task scheduling: https://youtu.be/mqLN_gEG8VA?si=TjZETuhBReGaDxF7