

Unit 14: event Driven Programming

Media Player Design Portfolio



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# Introduction / Purpose

As a junior programmer of an organisation called Computer Fusion, I have been asked to design an example of event driven program.

This project was assigned by a client ‘Universal Media’ to develop a prototype of a mobile media player that enables users to listen to music when they feel like it. The media player must allow the user to select a genre of music and then display a list of music within the genre that enables the user to listen to one type of genre only. The media player must also have a ‘Help button’ that answers the most common questions asked about the media player.

In this project, I have been asked make a design portfolio which will include the following:

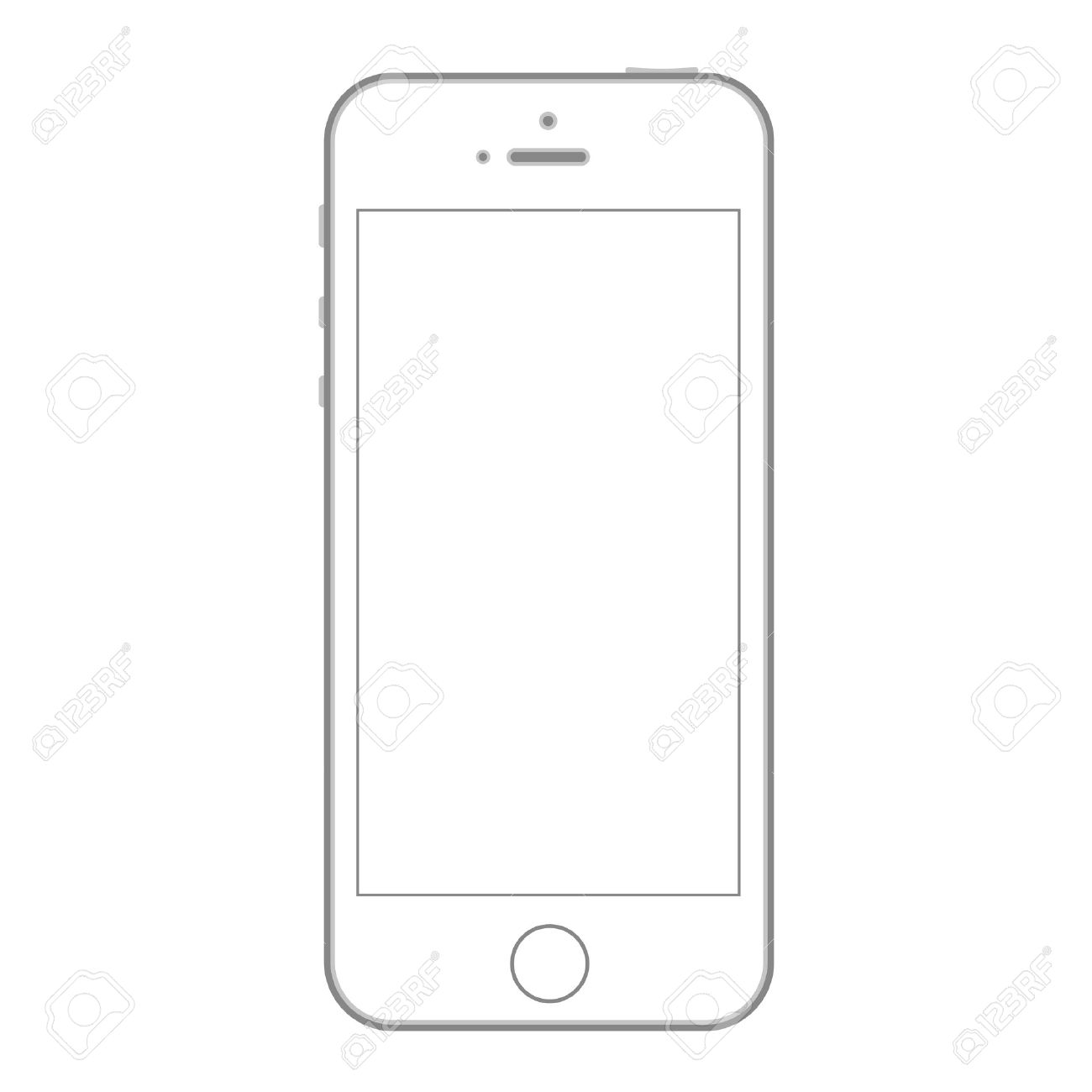
* Input/Output/Processing
* Requirements Specification
* Purpose
* Screen Designs
* Action / Events table
* Flowchart or pseudocode
* Data Dictionary
* Test Plan

By creating designs, I should easily be able to implement the software- the designs will guide me when creating the program allowing for a quicker and improved version of the software as I know what I have to do when implementing it instead of trying to make the software without a plan whatsoever.

# Requirement Specification

|  |  |  |
| --- | --- | --- |
| Requirement No. | Requirement | Description |
| 1 | Create a media player that allows the user to choose their song | The media player must contain a search box as well as a genre list. This allows the user to choose what kind of music they want |
| 2 | Create a home page for the media player | The home page is where the user is first sent to when opening the program, the user will be allowed to change their theme, search for a song or listen to a specific genre in the home page |
| 3 | Creating a setting button and allow for a setting page | In the home page, there should be a setting button that allows the user to change the theme. Once they click the button and is sent to the setting page, the user should be allowed to change a theme ‘light’ or ‘dark’. |
| 4 | Create a search bar | The search bar allows the user to type the song that they want to listen to. |
| 5 | Create a genre list | The genre list must contain different kinds of genre that opens up different kind of music that the user could listen to. |
| 6 | Create a play page for media player that plays the chosen music or genre | Upon typing the song name or clicking on the genre, the music must be played in a play page that contains media player buttons such as play, pause, etc. |
| 7 | Provide a pause and play button | This button allows the user to pause the music or play it whenever the user chooses to do so. |
| 8 | Create buttons (next and previous) that changes the current song | Once the change button is pressed e.g. if it is the next button, then a new song should be played. If it is the previous button, then it should change the track back to the song that was played previously |
| 9 | Make a slider that changes the volume | The media player must allow the user to change it to a volume that fits the user’s needs. This volume changer is going to be in a form of a slider for precision. |
| 10 | Have an image box and scrolling text that tells the user the song name | The image box should show the user an image related to the song. Also, the scrolling text (marquee) tells the user the details of the song which should include the song name, the artist and the genre. |
| 11 | Provide a help button | This button sends the user to a help page where the most common questions about the media player are answered. |

# Screen Designs



Home Page

Image result for small setting icon

This is the setting button; it is a pop up window (something like a drop down box) designed to allow the user to choose a theme – the themes are ‘dark’ and ‘light’. This setting button also gives the user a Help button

Label: Universal Media Player

Font: Bauhaus 93

Font size: 18

This is the search bar; its purpose is to allow the user to search and lookup for any music that they want and play it.

Search Bar

Settings Page:

Genre: Drop down list

Themes:

Light: Dark:

HELP

Help Page:

This page answers the most commonly asked question about the media player.

I have added a genre drop down list, this allows the user to pick a genre and listen to that type of music only. This makes it easier to listen to a certain kind of music.

This box is where a list of music will be placed, this is specifically helpful for when the user chooses the genre.

This is a back button to go back to the home; this is so that if the user does not like their theme then they can change it easily.

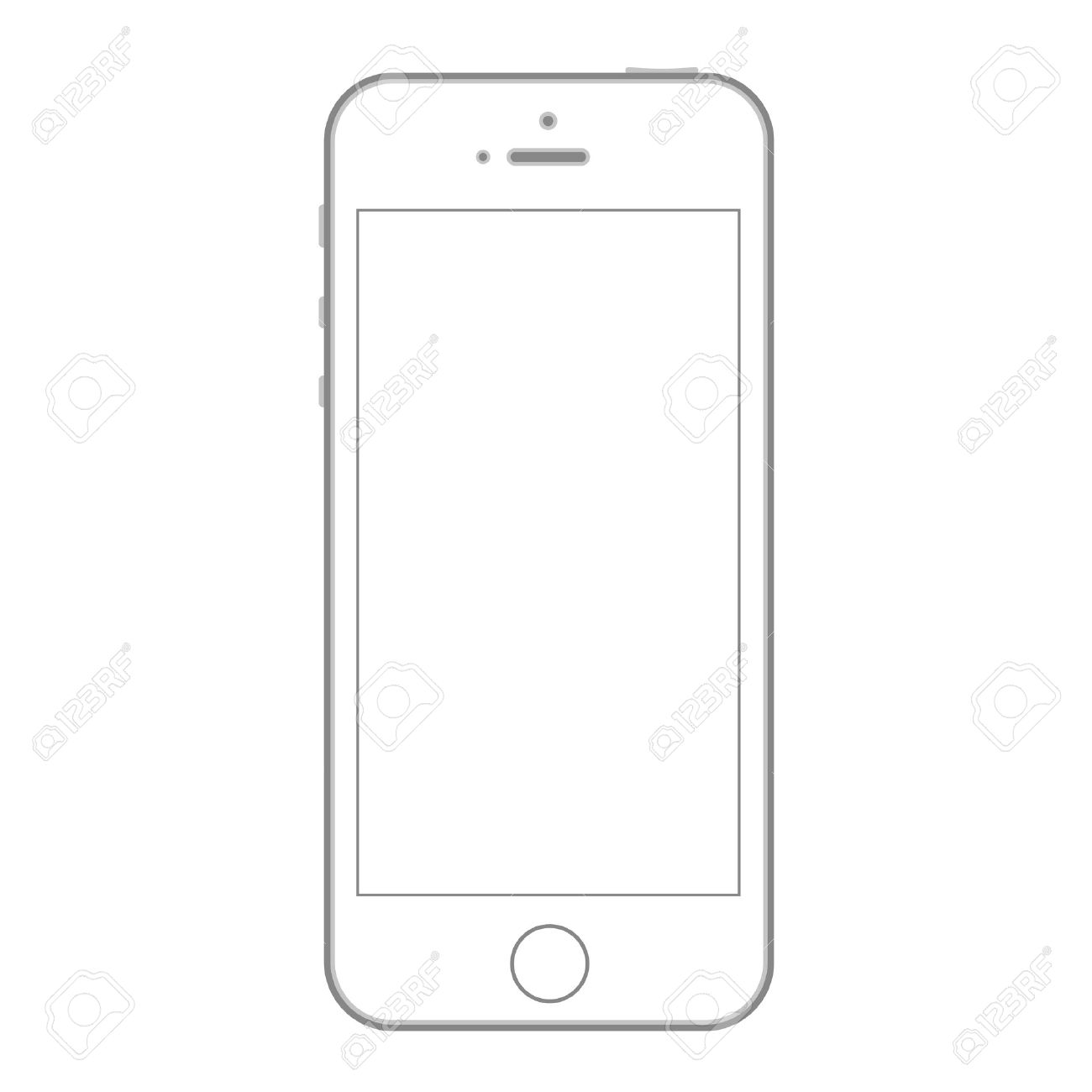
Play Page

This button allows the user to pause and play the music. This is so that if the user wants to pause the music they can just click on the button and vice versa.

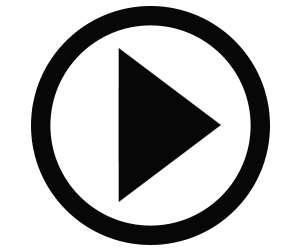
These are the next and previous buttons; their purpose is to allow the user to move on to a next song or go back to the previous song that that they have listened to and play it again.

This box is a marquee that keeps spinning around this shows the user the title of the songs, and the artist so that they know what music is playing.

Since it is a mobile media player, the volume can be changed from pressing the side buttons on the phone.



This visualiser/ image box shows the user an image related to the song making the overall media player look appealing and professional





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However, the volume can be changed by using the slider.

# Action / Events Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Form Name** | **Trigger** | **Event Handler** | **Events** |
| HomePage | Clicking on the setting button | btnSetting\_Click() | When the setting button has been clicked, a pop up menu will appear where the user can choose between two different themes |
| SettingsPage | Clicking / choosing the ‘light’ genre | optLight\_CheckedChanged() | When the user choose the light option, the theme of the media player should also change – the home screen should have a lighter background as well as the play page |
| SettingsPage | Clicking / choosing the ‘dark’ genre | optDark\_CheckedChanged() | When the user choose the dark option, the theme of the media player should also change – the home screen should have a darker background as well as the play page |
| SettingsPage | Clicking the help button | btnHelp\_Click() | When the help button is clicked another form should appear which contains answers to the most common questions asked. |
| HomePage / PlayPage | User types a song in the search bar | SearchBar\_TextChanged() | When the user types a song in the search bar, the program will check if the song is in the playlist and if it is, it sends him to the play form where the song will be played for the user. |
| HomePage | Clicking a genre in the genre drop down list | GenreList\_ValueChanged() | When the user has chosen the genre of music to listen to they will be sent to the play form where a list of music in that genre will be shown to them. |
| PlayPage | Clicking on the stop button | btnStop\_Click() | When the stop button has been clicked the current track should be stopped and should be reset. |
| PlayPage | Clicking on the play/pause button | btnPlay\_Click() | When the user click on the play/pause button depending on whether a song is currently playing or not – if a song is still playing then that song will be paused to its current time, however, if a song is paused click on the button will continue the song |
| PlayPage | Clicking on the next button | btnNext\_Click() | Clicking on the next button changes the current track to the track that is next on the list |
| PlayPage | Clicking on previous button | btnPrevious\_Click() | Clicking on the previous button changes the current track to the previous track on the list |
| PlayPage | Changing/moving the volume slider | VolumeSlider\_Scroll() | When the volume slider is increased the volume will also be increased, the current volume will also be displayed in the track bar. This also works when the volume slider is decreased which in turn decreased the volume |

# Media Player Flowcharts

Start

Load media player

Show user setting button

Ask user to search a song

Select for a genre from the genre list

Help button clicked?

Is setting button clicked?

Pop up and show setting page

Y

Pop up and display help page

Y

N

N

N

Help page closed?

Y

Light theme chosen?

Y

Change to light theme

Close popup

N

Dark theme chosen?

Y

Change to dark theme

Close popup

Go to play form

Genre chosen?

Show genre list

Is genre button clicked?

Is song on the playlist?

Has user searched for a song?

Y

Y

N

N

Y

Y

Play chosen song

Is the song playing?

Play/pause button clicked~?

Y

Y

Pause song

N

N

Next button clicked?

Y

Play next song on the playlist

N

Previous button clicked?

Y

Play previous song on the playlist

N

N

Y

Play next song on the playlist

End

N

N

N

Y

Y

Y

End of music file?

Show volume value

Show volume value

Increase volume

Decrease volume

Volume slider went down?

Volume slider changed?

Volume slider went up?

# Input / Output / Process

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| btnSettings\_Click | SettingPage.Show() | Show the user a different form called setting page |
| optLight\_CheckedChanged | HomePage.BackColor = Color.WhiteSmoke  PlayPage.BackColor = Color.WhiteSmoke | Changes the theme of the media player to a lighter theme e.g. lighter home page |
| optDark\_CheckedChanged | HomePage.BackColor = Color.DarkGray  PlayPage.BackColor = Color.DarkGray | Changes the theme of the media player to a dark theme e.g. dark home page |
| btnHelp\_Click | HelpPage.Show() | Shows the user the help page assisting them when using the media player |
| txtSearch\_TextChanged | userSearch = txtSearch.Text  If userSearch = x in playlist Then  Me.Hide()  PlayPage.Show()  End If | If the user’s song input is on the playlist then it will send him to the play form where the music should automatically play. |
| btnPlay\_Click / btnPause\_Click | MediaPlayer.Ctlcontrols.play() / MediaPlayer.Ctlcontrols.pause () | Plays or pauses the song depending on the state of the media player. |
| btnNext\_Click | If MusicBox = (x) Then  MediaPlayer.Url = Music(x + 1) | Plays the next song |
| btnPrevious\_Click | If MediaPlayer.Url = (x)  MediaPlayer.Url =Music(x – 1) | Plays the previous song |
| VolumeSlider\_Scroll | WindowsMediaPlayer.settings.volume = VolumeSlider.Value | Changes the volume of the media making it louder or quieter. |

# Data Dictionary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Identifier Name** | **Variable or Constant** | **Scope** | **Data Type** | **Value** | **Justification** |
| userSearch | Variable | HomePage / Play Page | String | ‘Search’ | This variable is where the user’s song input is assigned allowing the program to use IF statement to look for that specific song and play it. This means that it needs to be a variable for the user to be able to choose a variety of songs |
| GenreChoice | Constant | HomePage | String |  | This is a dropdown box that shows a list of genre allowing the user to select one. It’s a constant as I can put all the genre in which the users can select. |
| volumeSlider | Variable | PlayPage | Integer | 20 | This is the slider that the user can use to change the volume of the song/file that is being played. It is a variable to allow the user to change the value. |
| genreClassical | Constant | HomePage | Array |  | This is a genre specifically for classical music which will only play all the classical music when it is chosen in the drop down menu |
| genreCountry | Constant | HomePage | Array |  | This is a genre specifically for country music which will only play all the country music when it is chosen in the drop down menu |
| genreFolk | Constant | HomePage | Array |  | This is a genre specifically for folk music which will only play all the folk music when it is chosen in the drop down menu |
| genreElectronic | Constant | HomePage | Array |  | This is a genre specifically for electronic music which will only play all the electronic music when it is chosen in the drop down menu |
| genreJazz | Constant | HomePage | Array |  | This is a genre specifically for jazz music which will only play all the jazz music when it is chosen in the drop down menu |

# Test Plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Number** | **Description** | **Test Data** | **Expected Outcome** | **Actual Outcome** | **Action / Notes** |
| 1. | Open setting page | Click on the setting button | When I click on the setting button, a pop up must appear that allows me to choose between a light theme and a dark theme | When I clicked on the setting button, a setting page popped up showing the themes that you could choose as well as a help button that the user can click. |  |
| 2 | Choosing between two different theme | Choose ‘light theme’ and choose ‘dark theme | When I choose the light option it should change the layout of the media player to a lighter background, similarly when I choose the ‘dark theme’ it should also switch it to a media player with a lighter background |  |  |
| 3 | Show help page | Click on the help button on the setting page | When I click on the help button, a pop up help page must appear which displays answers of the most common questions. |  |  |
| 4 | Showing the genre list | Click on the drop down list | When I click on the genre drop down box, it should show me a list of genre – the list should contain a genre of: classical, country, folk, electronic, jazz, reggae, rock, anime. |  |  |
| 5 | Showing the user the songs within the genre | Choose the ‘Rock’ genre | When I choose the ‘rock’ genre, it should send me to a list of songs that are all ‘Rock’ |  |  |
| 6 | Searching for a song using the search bar | Search for a song called ‘Snow’ | When I search for the song ‘Show’ it should show a list of all the songs and artist that has Snow in it where I can click to play the music. |  |  |
| 7 | Playing the music searched from the search bar | Click on the drop down option | When I click on the ‘Snow’ option, it should play the music. |  |  |
| 8 | Display an image or make sure that the visualiser is moving | Play a song | When I play a song, the visualiser should go with the beat of the song |  |  |
| 9 | Pausing the music that is currently playing | Click on the play/pause button | If the song is playing, when I click on the play/pause button, it should pause the song to the current time. |  |  |
| 10 | Skip to the next song | Click on the next button | When I click on the next button, it should skip the current song and play the song that is next on the list |  |  |
| 11 | Go back to the previous song | Click on the previous button | When I click on the next button, it should skip the current song and play the previous song on the list. |  |  |
| 12 | Increase the volume of the media player | Increase the volume slider | When I increase the volume slider the music that is being played should also go louder |  |  |
| 13 | Decrease the volume of the media player | Decrease the volume slider | When I increase the volume slider the music that is being played should also go louder |  |  |