

# **Altering Heartbeat Using AI Selected Music Test Reports**

Team Members:  
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## 5.1 Test Report Template

Test Report	
<b>Test ID:</b>	Ex. TC-1-1
<b>Attempt Number:</b>	Ex. 01
<b>Date:</b>	Ex. 7/8/2024
<b>Test Performed by:</b>	Ex. May Wandyez
<b>Pass/Fail</b>	Ex .Pass
Test Case Description:	
<b>ID:</b>	TC-1-1
<b>Item to Test:</b>	UC-1, FR 3.2.3
<b>Description:</b>	Test of target heart rate default value feature.
<b>Pre-Conditions:</b>	No target heart rate has been entered by the user.
<b>Test Steps:</b>	1.) Open the application. 2.) Observe the 'target heart rate' input box.
<b>Expected Results:</b>	The value for target heart rate is set at the default value of 70.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.
<b>Fail Criteria:</b>	The value for the default target heart rate is not visible. The value for the default target heart rate is not 70.
Screenshot Confirming Preconditions met:	
Screenshots of Each Step:	

<b>Screenshot of Final Result:</b>	
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass result criteria requires the default heart rate to be visible, and the default heart rate is visible. The pass result criteria requires the default target heart rate to be 70, the displayed default target heart rate is 70.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

## 5.2 Functional Test Cases

### 5.2.1 UC-1: Target Heart Rate

<b>ID:</b>	TC-1-1
<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate default value feature.
<b>Pre-Conditions:</b>	No target heart rate has been entered by user.
<b>Test Steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Observe the ‘target heart rate’ input box.</li> </ol>
<b>Expected Results:</b>	The value for target heart rate is set at the default value of 70.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.
<b>Fail Criteria:</b>	The value for the default target heart rate is not visible. The value for the default target heart rate is not 70.

Test Report	
<b>Test ID:</b>	<b>TC-1-1</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/10/2024</b>
<b>Test Performed by:</b>	<b>Jeremy John</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	
<b>ID:</b>	<b>TC-1-1</b>
<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate default value feature.
<b>Pre-Conditions:</b>	No target heart rate has been entered by user.
<b>Test Steps:</b>	<p>3.) Open the application.</p> <p>4.) Observe the 'target heart rate' input box.</p>
<b>Expected Results:</b>	The value for target heart rate is set at the default value of 70.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.
<b>Fail Criteria:</b>	<p>The value for the default target heart rate is not visible.</p> <p>The value for the default target heart rate is not 70.</p>
<b>Screenshot Confirming Preconditions met:</b>	

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

70



Start

Screenshots of Each Step:

## Heart Rate Music

[Home](#)    [User Guide](#)



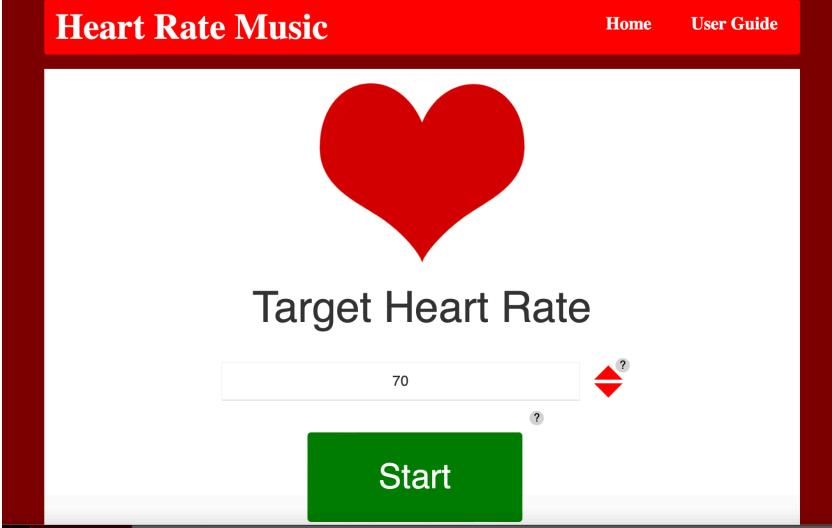
Target Heart Rate

70



Start

Screenshot of Final Result:

	
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	This matches the pass criteria since the value for default target heart rate is visible and the value is set to 70.
<b>Is this a Pass or Fail?</b>	<b>Pass</b>
<b>If fail, please note the parameters that created the failure.</b>	

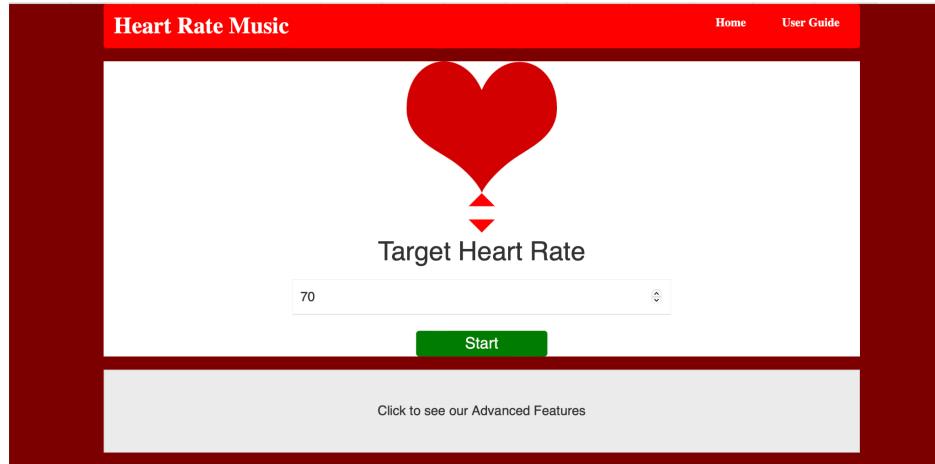
<b>ID:</b>	TC-1-2
<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate range limitation feature.
<b>Pre-Conditions:</b>	No target heart rate has been entered by the user.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application</li> <li>2.) Attempt to input a value above 150 in the target heart rate box.</li> <li>3.) Attempt to input a value below 40 in the target heart rate box.</li> </ol>
<b>Expected Results:</b>	The user is unable to set the target heart rate to a value higher than 150 or lower than 140. When the user attempts to input a value higher than 150, the value will not increase above 150 and will remain at 150. If the user attempts to input a value below 40, the value will not decrease below 40 and the value will remain at 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.

<b>Fail Criteria:</b>	User is able to input a value above 150 or below 40.
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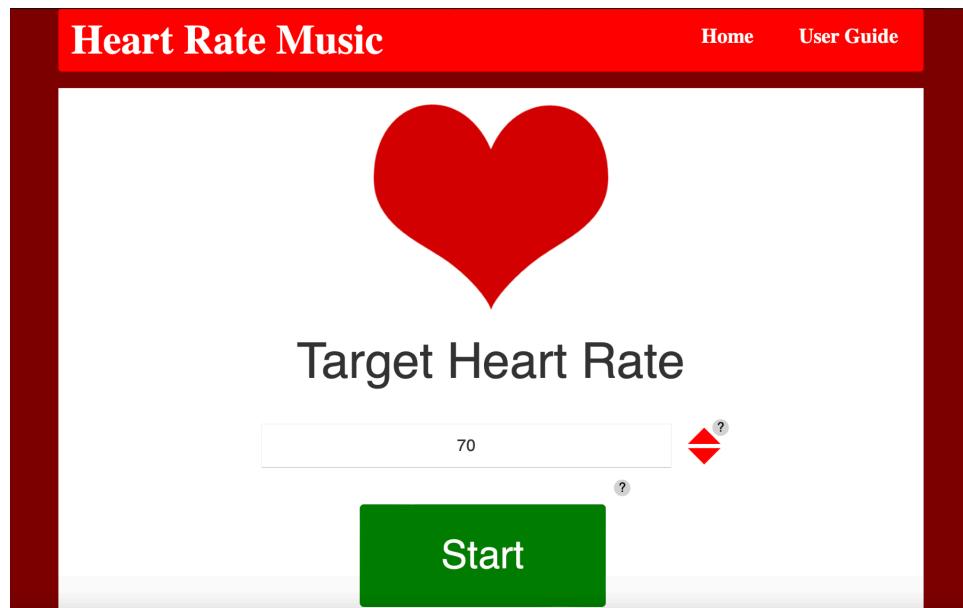
Test Report	
<b>Test ID:</b>	TC-1-2
<b>Attempt Number:</b>	01
<b>Date:</b>	7/11/2024
<b>Test Performed by:</b>	Jeremy John
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-1-2
<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate range limitation feature.
<b>Pre-Conditions:</b>	No target heart rate has been entered by the user.
<b>Test Steps:</b>	<p>1.)Open the application</p> <p>2.)Attempt to input a value above 150 in the target heart rate box.</p> <p>3.)Attempt to input a value below 40 in the target heart rate box.</p>
<b>Expected Results:</b>	The user is unable to set the target heart rate to a value higher than 150 or lower than 140. When the user attempts to input a value higher than 150, the value will not increase above 150 and will remain at 150. If the user attempts to input a value below 40, the value will not decrease below 40 and the value will remain at 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.

<b>Fail Criteria:</b>	User is able to input a value above 150 or below 40.
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#### Screenshot Confirming Preconditions met:



#### Screenshots of Each Step:



1)

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

150



Start

2)

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

40



Start

3)

Screenshot of Final Result:

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

40



Start

1)

## Heart Rate Music

[Home](#)    [User Guide](#)



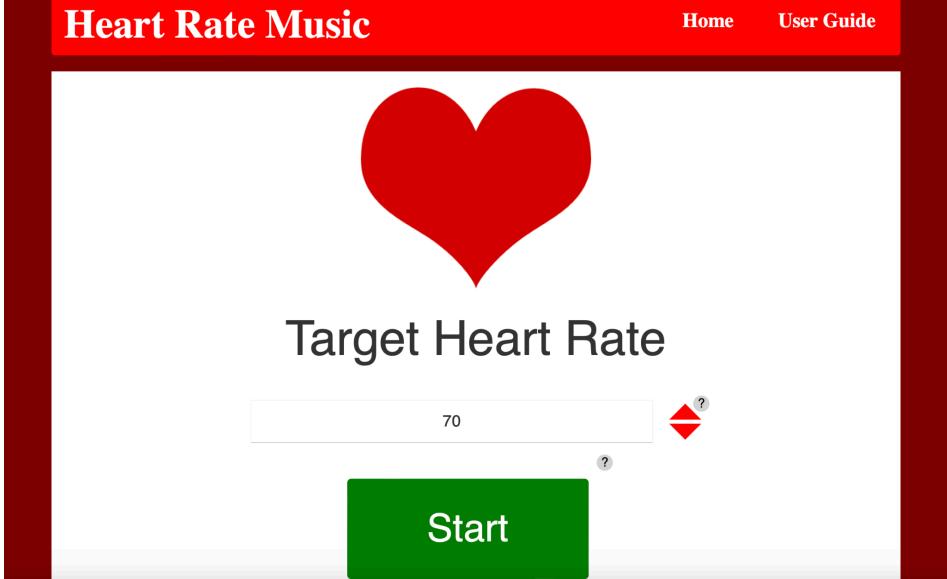
Target Heart Rate

150



Start

2)



3)

<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass criteria is met because the user is unable to enter a target heart rate value above 150. The user is also unable to enter a value below 40 so the pass criteria is met.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

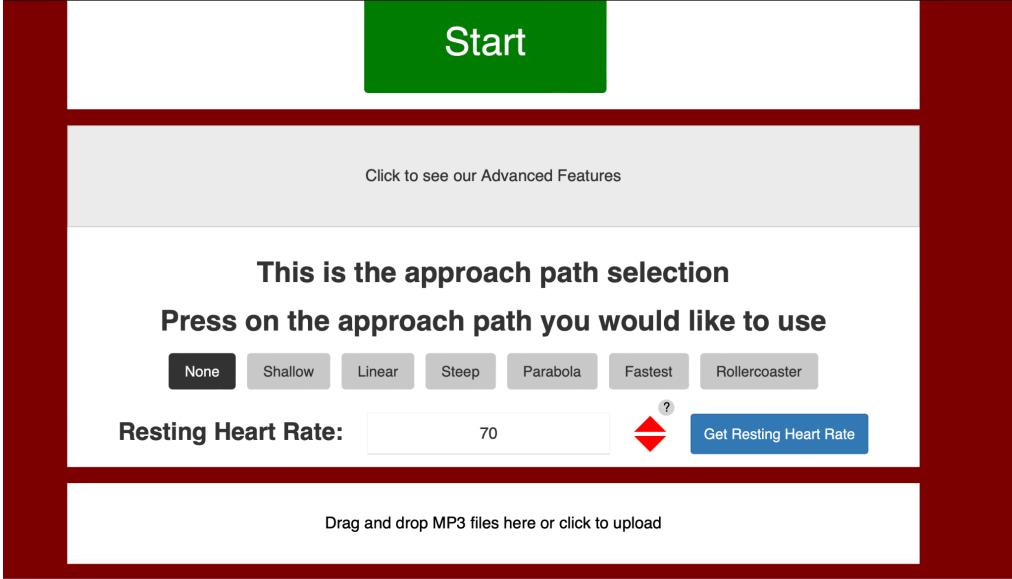
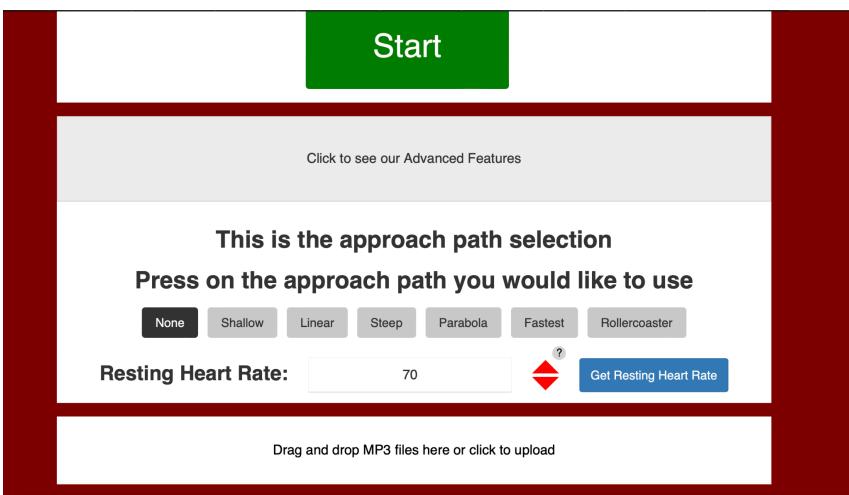
### 5.2.2 UC-2: Resting Heart Rate Input

<b>ID:</b>	TC-2-1
<b>Item to Test:</b>	Resting Heart Rate Input
<b>Description:</b>	Test of resting heart rate default value feature.
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.
<b>Test steps:</b>	1.) Open the application. 2.) Click on the 'advanced features' tab to reveal the resting heart rate input. 3.) Observe the current value in the resting heart rate input.

<b>Expected Results:</b>	The value within the resting heart rate input should be 70.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default resting heart rate is visible, the value for the default resting heart rate is 70.
<b>Fail Criteria:</b>	The resting heart rate value is not visible, or is some number other than 70.

Test Report	
<b>Test ID:</b>	TC-2-1
<b>Attempt Number:</b>	01
<b>Date:</b>	7/11/2024
<b>Test Performed by:</b>	Jeremy John
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-2-1
<b>Item to Test:</b>	Resting Heart Rate Input
<b>Description:</b>	Test of resting heart rate default value feature.
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.
<b>Test Steps:</b>	<p>1.)Open the application.</p> <p>2.)Click on the ‘advanced features’ tab to reveal the resting heart rate input.</p> <p>3.)Observe the current value in the resting heart rate input.</p>
<b>Expected Results:</b>	The value within the resting heart rate input should be 70.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default resting heart rate is

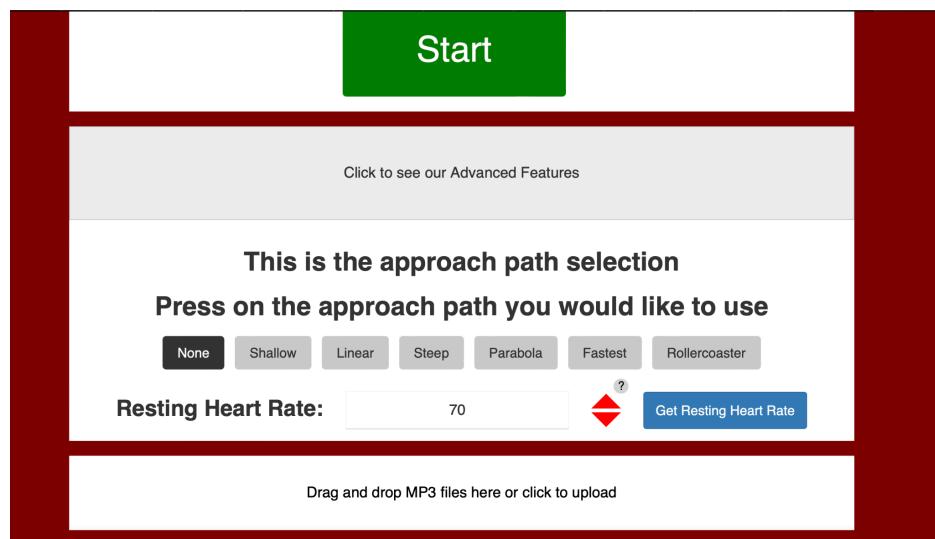
	visible, the value for the default resting heart rate is 70.
<b>Fail Criteria:</b>	The resting heart rate value is not visible, or is some number other than 70.
<b>Screenshot Confirming Preconditions met:</b>	
<b>Screenshots of Each Step:</b>	
1)	

	 <p>2)</p>
	<p><b>Screenshot of Final Result:</b></p> 
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	<p>The pass criteria has been met because the value for the resting heart rate is 70 and visible to the user.</p>
<b>Is this a Pass or Fail?</b>	<p>Pass.</p>
<b>If fail, please note the parameters that created the failure.</b>	

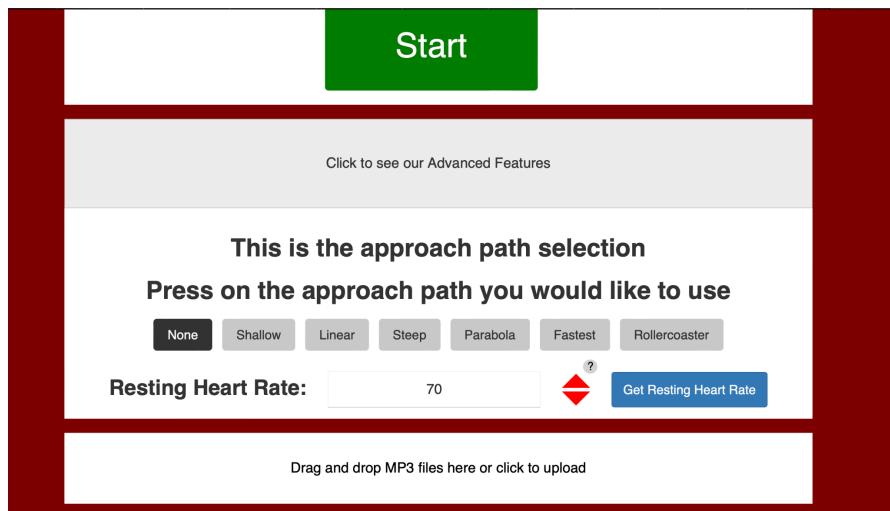
<b>ID:</b>	TC-2-2
<b>Item to Test:</b>	Resting Heart Rate Input
<b>Description:</b>	Test of resting heart rate range limitation feature
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the ‘advanced features’ button to reveal the resting heart rate input.</li> <li>3.) Attempt to input a value greater than 150.</li> <li>4.) Attempt to input a value less than 40.</li> </ol>
<b>Expected Results:</b>	It should be impossible to enter a value greater than 150, or less than 40 within the resting heart rate input box. If the user attempts to input a value greater than 150, the value will automatically adjust to 150. If the user attempts to input a value lower than 40, the value will automatically adjust to 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	User is unable to adjust resting heart rate above 150, or below 40.
<b>Fail Criteria:</b>	User is able to adjust the resting heart rate to above 150, or below 40.

Test Report	
<b>Test ID:</b>	TC-2-2
<b>Attempt Number:</b>	01
<b>Date:</b>	7/12/2024
<b>Test Performed by:</b>	Jeremy John
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-2-2
<b>Item to Test:</b>	Resting Heart Rate Input

<b>Description:</b>	Test of resting heart rate range limitation feature
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.
<b>Test Steps:</b>	<p>1.)Open the application.</p> <p>2.)Click the 'advanced features' button to reveal the resting heart rate input.</p> <p>3.)Attempt to input a value greater than 150.</p> <p>4.)Attempt to input a value less than 40</p>
<b>Expected Results:</b>	It should be impossible to enter a value greater than 150, or less than 40 within the resting heart rate input box. If the user attempts to input a value greater than 150, the value will automatically adjust to 150. If the user attempts to input a value lower than 40, the value will automatically adjust to 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	User is unable to adjust resting heart rate above 150, or below 40.
<b>Fail Criteria:</b>	User is able to adjust the resting heart rate to above 150, or below 40.
<b>Screenshot Confirming Preconditions met:</b>	



### Screenshots of Each Step:



1)

**Start**

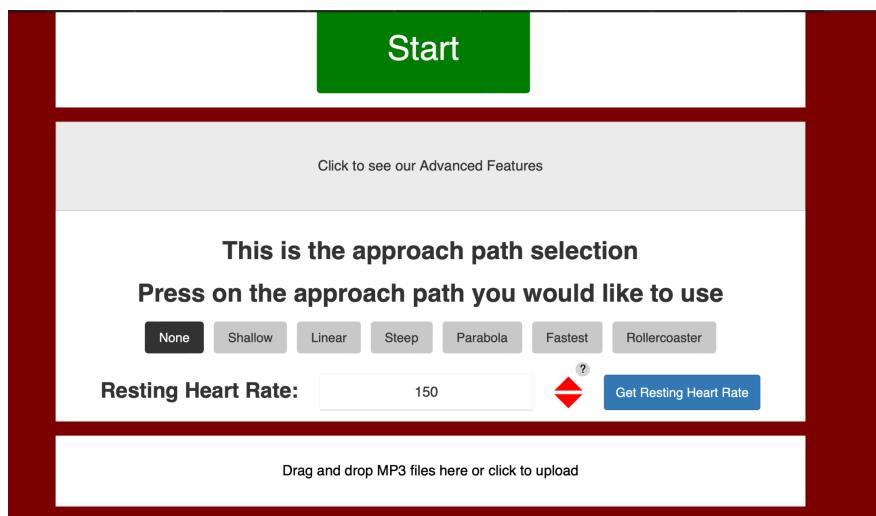
Click to see our Advanced Features

**This is the approach path selection**

Press on the approach path you would like to use

**Resting Heart Rate:**  

Drag and drop MP3 files here or click to upload



2)

**Start**

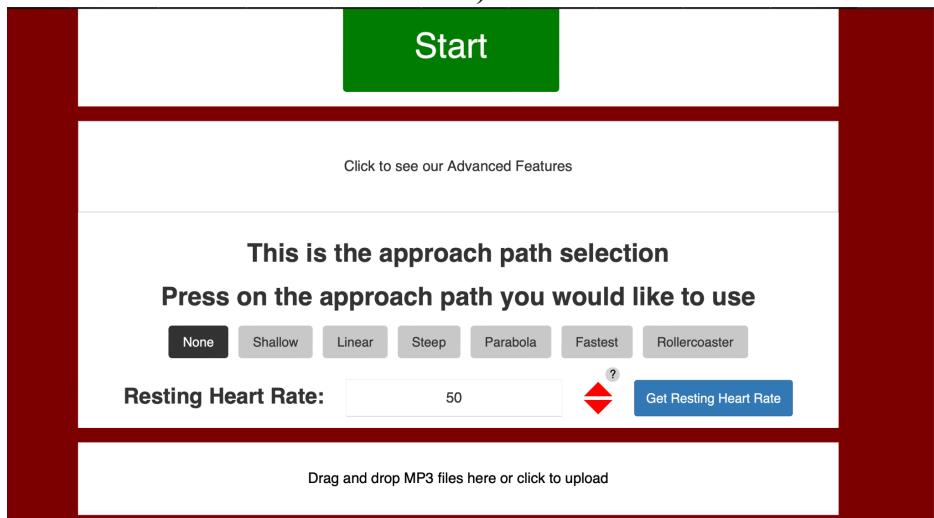
Click to see our Advanced Features

**This is the approach path selection**

Press on the approach path you would like to use

**Resting Heart Rate:**  

Drag and drop MP3 files here or click to upload



3)

Screenshot of Final Result:



**Start**

Click to see our Advanced Features

**This is the approach path selection**

**Press on the approach path you would like to use**

None   Shallow   Linear   Steep   Parabola   Fastest   Rollercoaster

Resting Heart Rate:  ? Get Resting Heart Rate

Drag and drop MP3 files here or click to upload

1)

**Start**

Click to see our Advanced Features

**This is the approach path selection**

**Press on the approach path you would like to use**

None   Shallow   Linear   Steep   Parabola   Fastest   Rollercoaster

Resting Heart Rate:  ? Get Resting Heart Rate

Drag and drop MP3 files here or click to upload

2)

**Explain Why This Result Matches the Pass/Fail Criteria:**

The pass result criteria is met because the user is unable to adjust resting heart rate above 150, or below 40.

**Is this a Pass or Fail?**

Pass.

**If fail, please note the parameters that created the failure.**

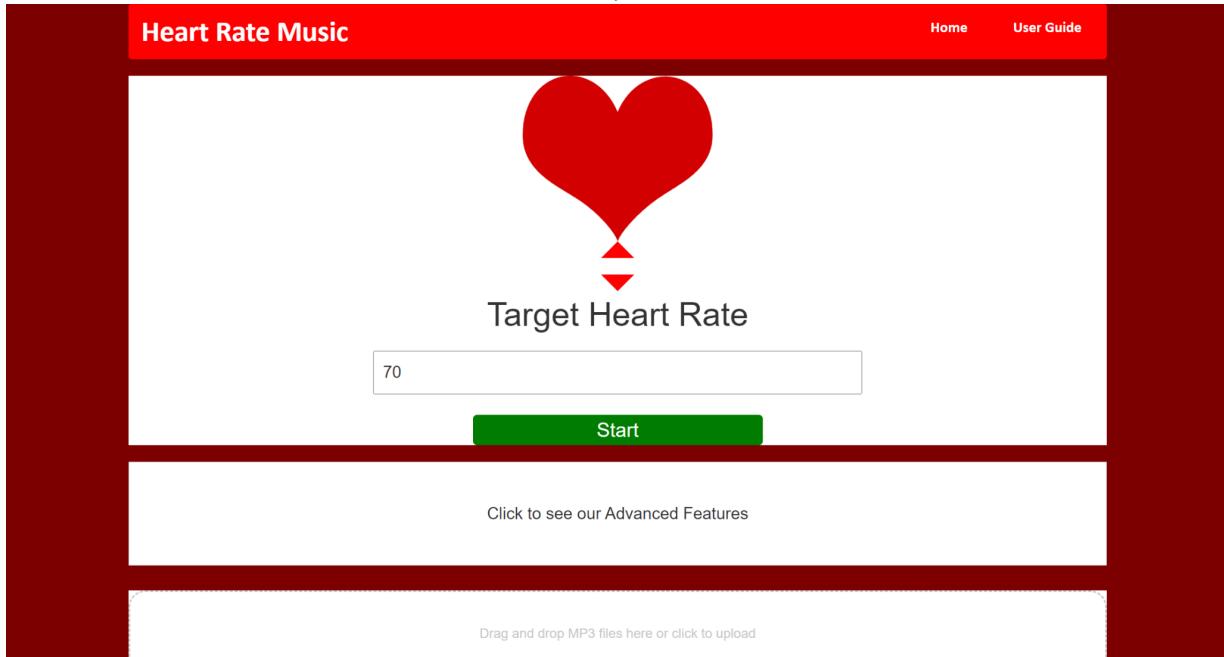
### Test Report

**Test ID:**

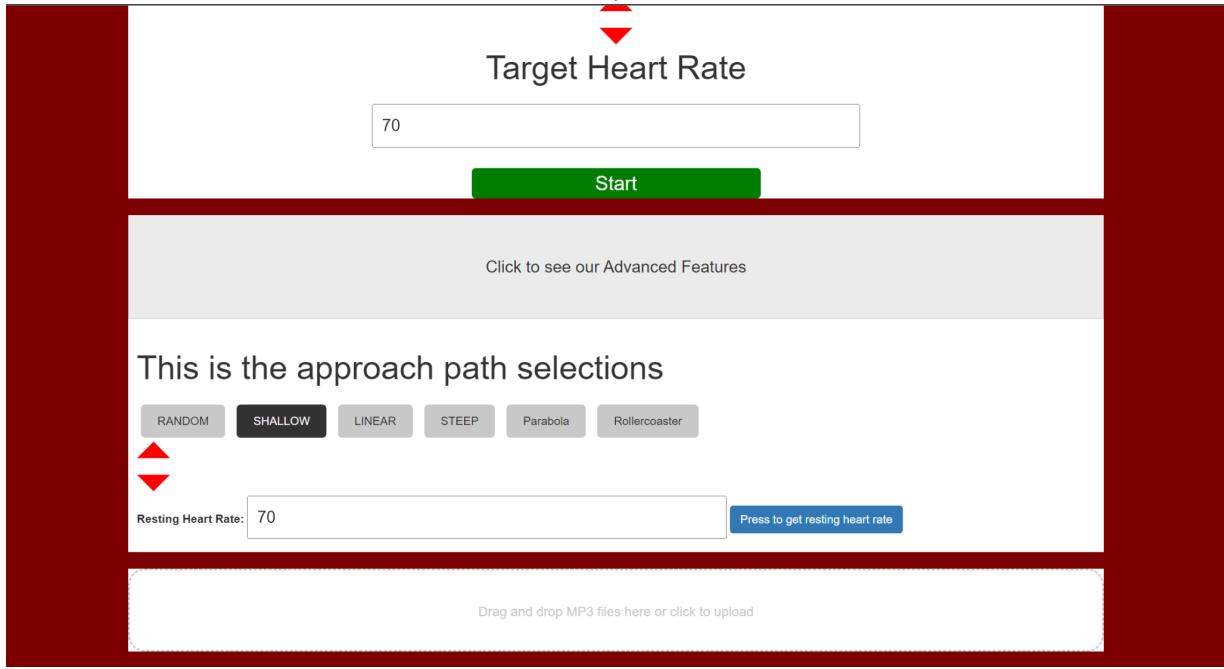
**TC 2-3**

<b>Attempt Number:</b>	01
<b>Date:</b>	7/10/2024
<b>Test Performed by:</b>	Ahmad Shah
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC 2-3
<b>Item to Test:</b>	Get Resting Heart Rate Button
<b>Description:</b>	Test of 'get resting heart rate' feature.
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user. The user is wearing their Garmin Vivosmart 4.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1) Enable 'broadcast mode' on your Garmin Vivosmart 4.</li> <li>2) Start the application.</li> <li>3) Click the 'advanced features' button to reveal the resting heart rate input, and the 'get resting heart rate' button.</li> <li>4) Click the resting heart rate button.</li> </ol>
<b>Expected Results:</b>	The default value within the resting heart rate input box is replaced with some other value.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The resting heart rate in the resting heart rate input box is replaced with some other value than 70.
<b>Fail Criteria:</b>	The value within the resting heart rate input box does not change.
Screenshot Confirming Preconditions met:	
N/A	
Screenshots of Each Step:	

2)



3)



Screenshot of Final Result:

**Target Heart Rate**

**Start**

Click to see our Advanced Features

This is the approach path selections

**RANDOM**
**SHALLOW**
**LINEAR**
**STEEP**
**Parabola**
**Rollercoaster**

▲
Resting Heart Rate:

▼

**Press to get resting heart rate**

Resting Heart Rate: 86

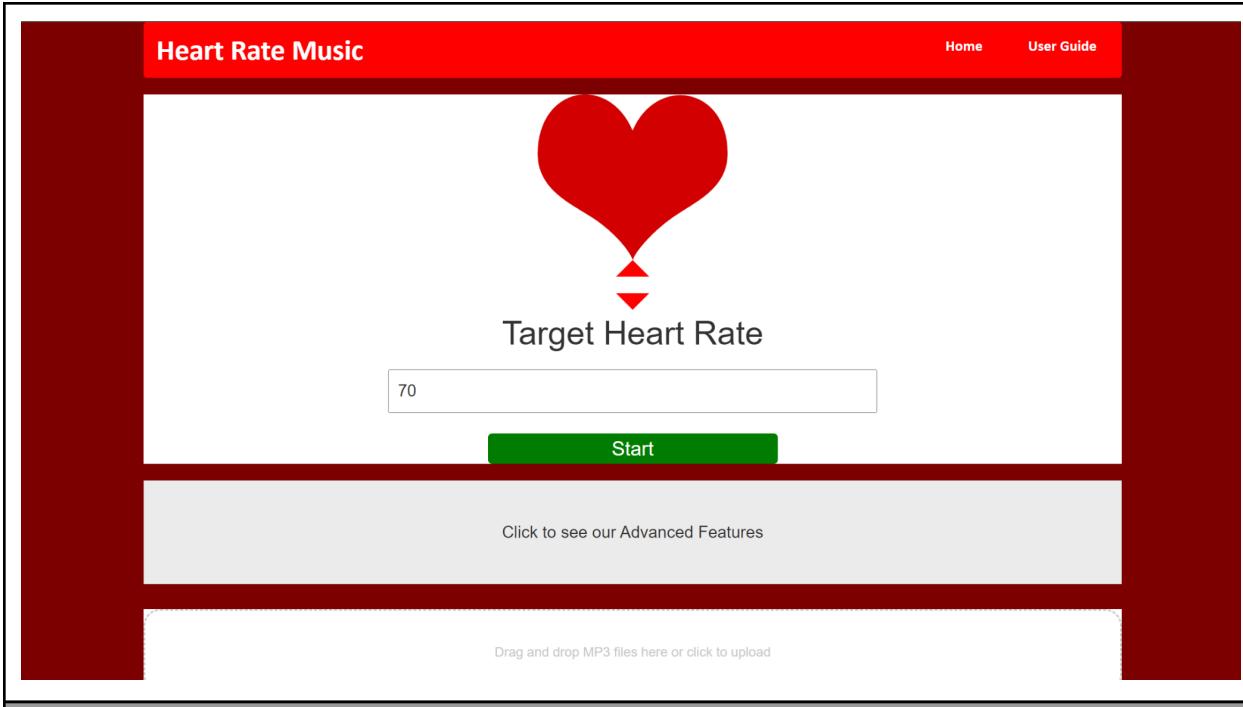
Drag and drop MP3 files here or click to upload

<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	When selecting get resting heart rate, it returns and fills the box with the actual resting heart rate
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

### 5.2.3 UC-3: Select Music

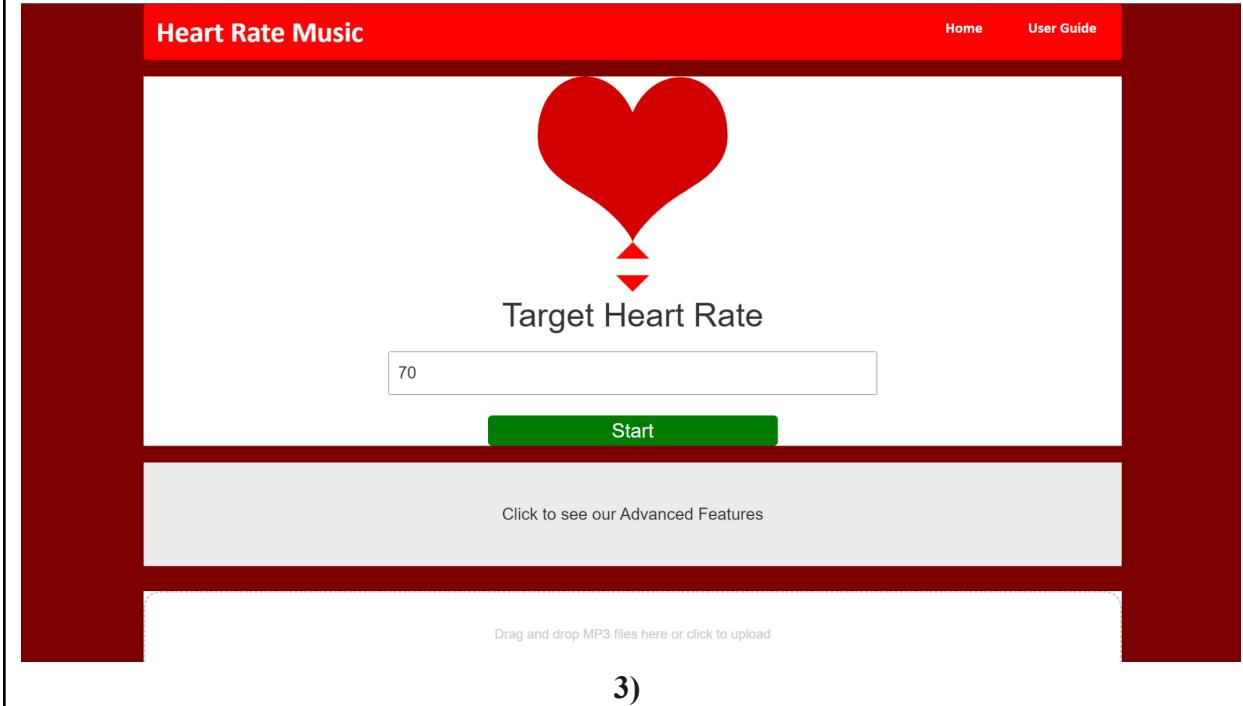
Test Report	
<b>Test ID:</b>	<b>TC 3-1</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/10/2024</b>
<b>Test Performed by:</b>	<b>Ahmad Shah</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	

<b>ID:</b>	TC 3-1
<b>Item to Test:</b>	Start Button
<b>Description:</b>	Test of ‘select music feature’
<b>Pre-Conditions:</b>	The application is started. The user is wearing their Garmin Vivosmart 4.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1) Enable ‘broadcast mode’ on your Garmin Vivosmart 4.</li> <li>2) Open the application.</li> <li>3) Set the target heart rate to 150.</li> <li>4) Click the ‘start’ button.</li> <li>5) Note which song begins playing.</li> <li>6) Close the application.</li> <li>7) Open the application.</li> <li>8) Set the target heart rate to 40.</li> <li>9) Click the ‘start’ button.</li> <li>10) Note which song begins playing.</li> </ol>
<b>Expected Results:</b>	Different songs should appear on screen and begin playing automatically.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	The songs that are playing are different. The tempo of the first song (to raise your heart rate) should be high, the tempo of the second song that should be playing should be low.
<b>Fail Criteria:</b>	No song begins playing or the same song plays in both instances. Music widget fails to appear.
<b>Screenshot Confirming Preconditions met:</b>	

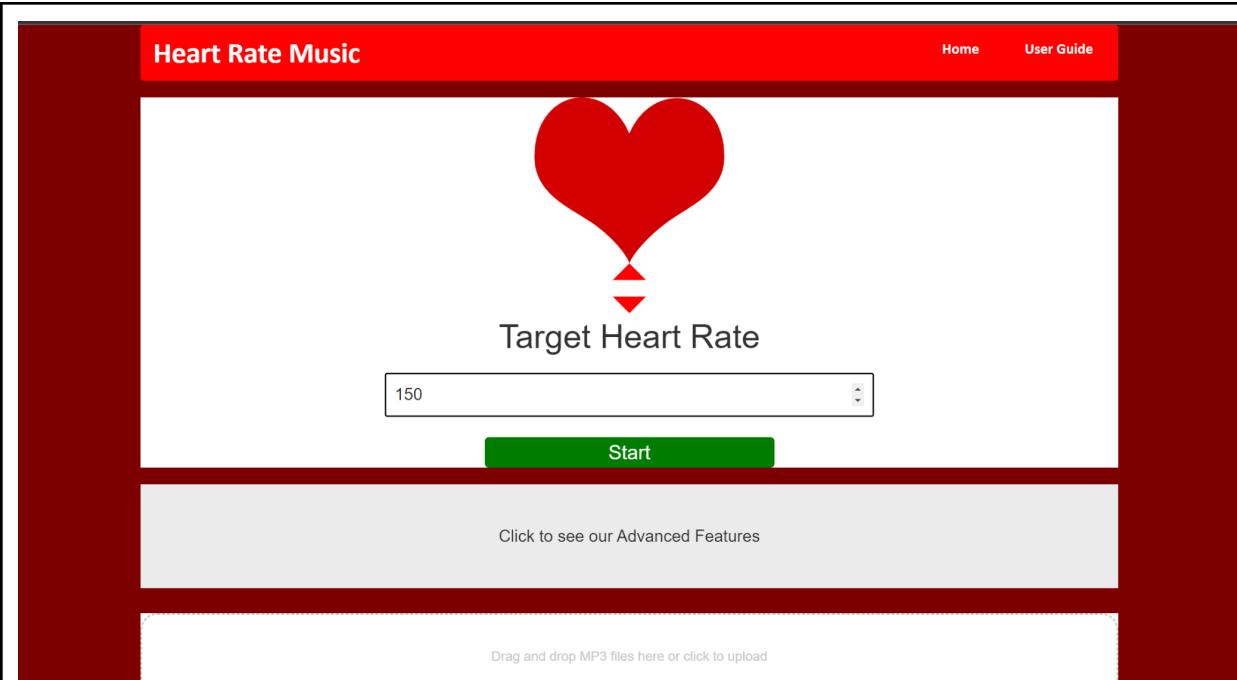


### Screenshots of Each Step:

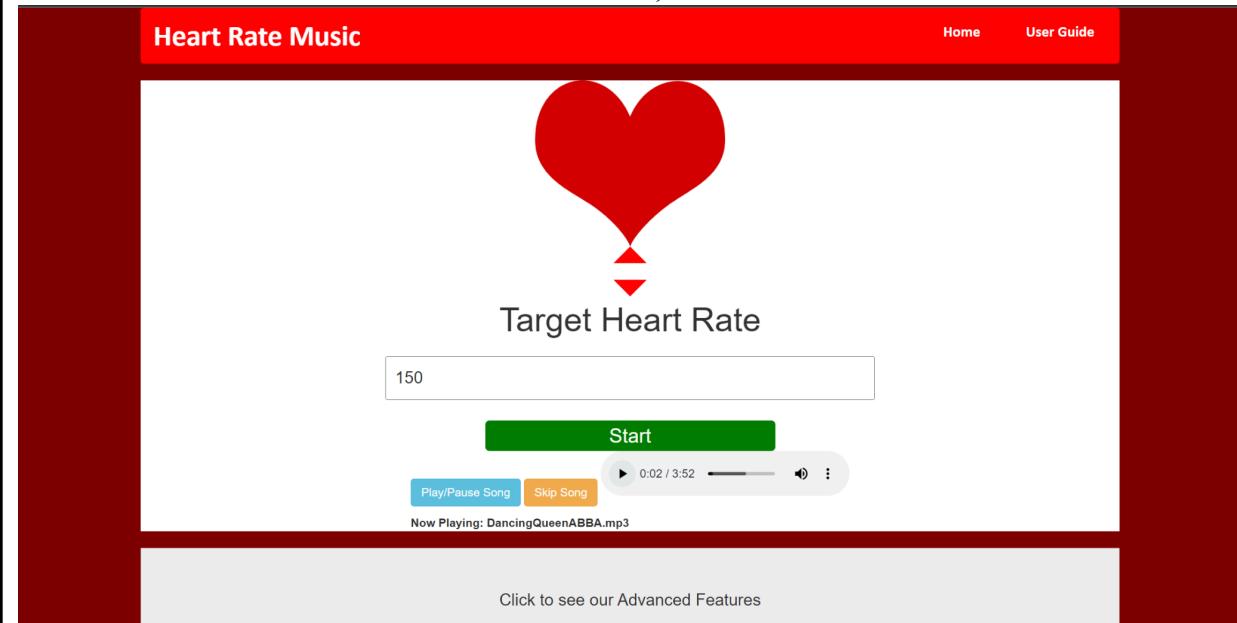
2)



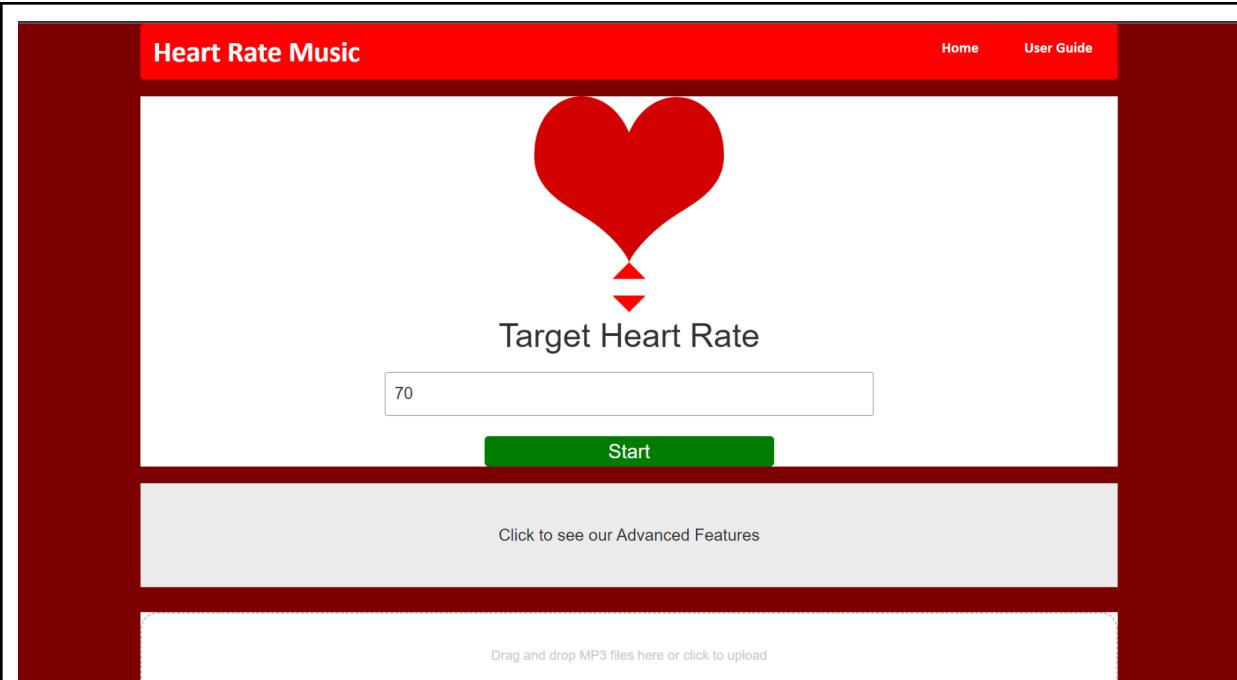
3)



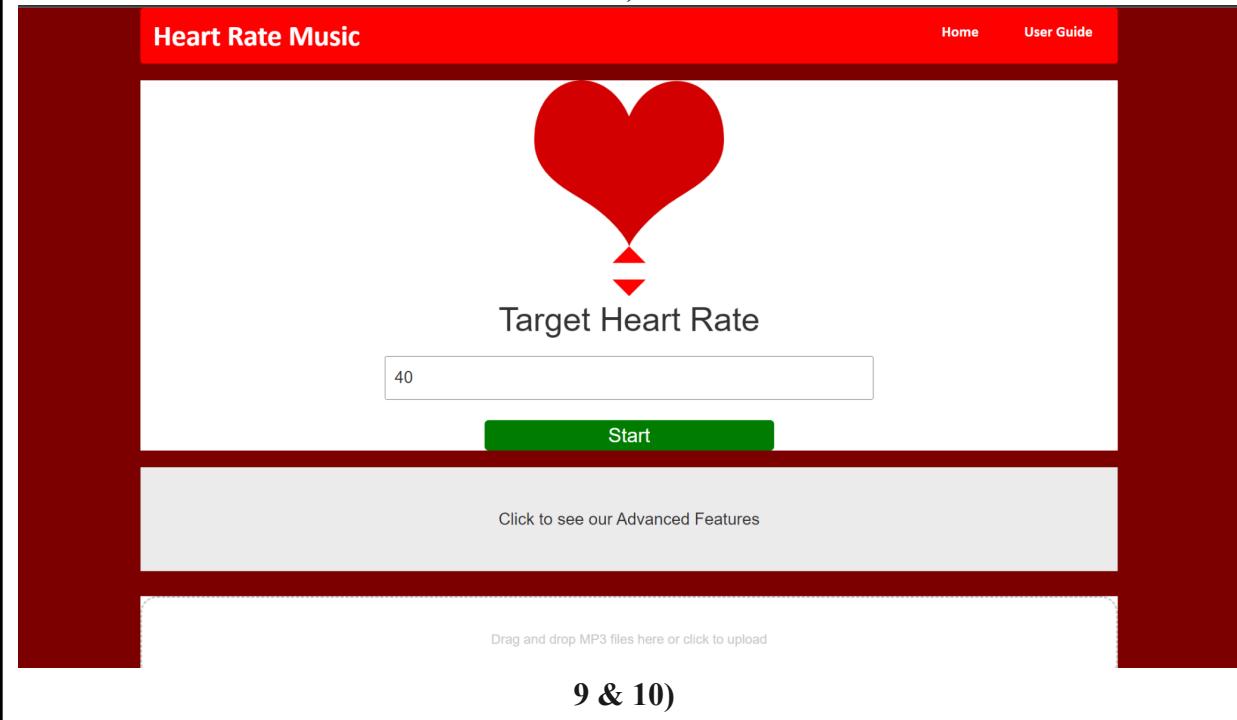
4 & 5)



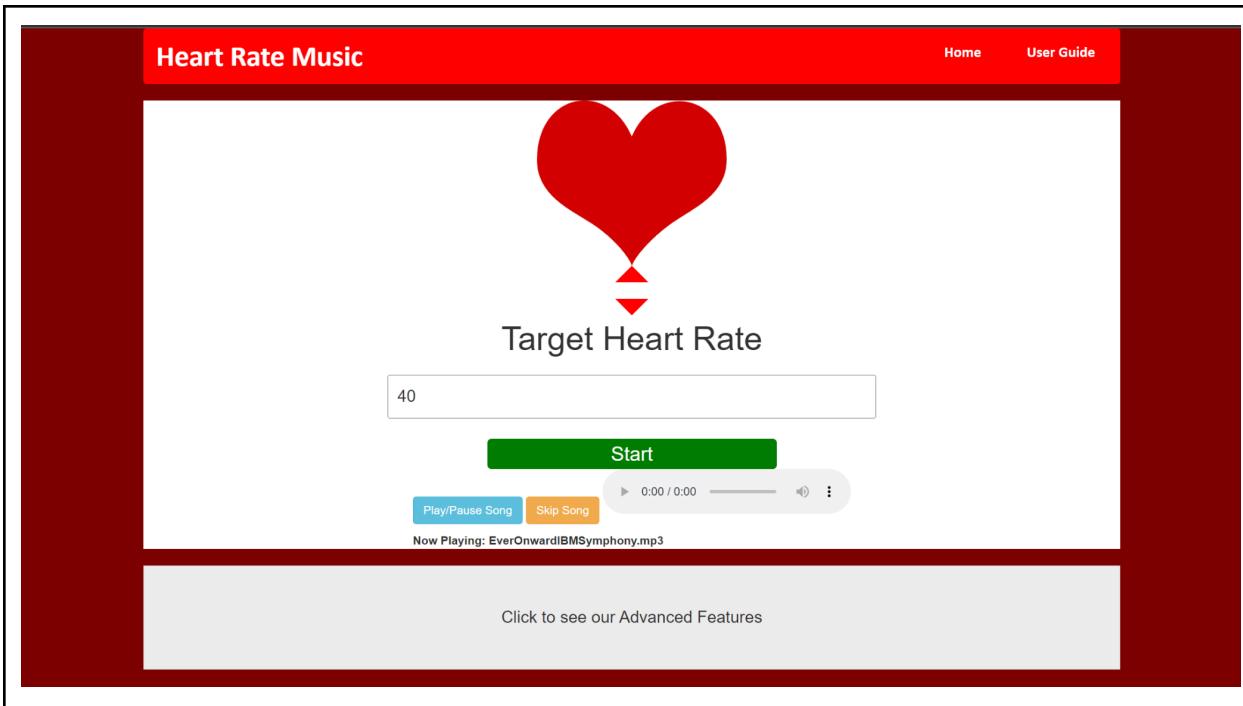
7)



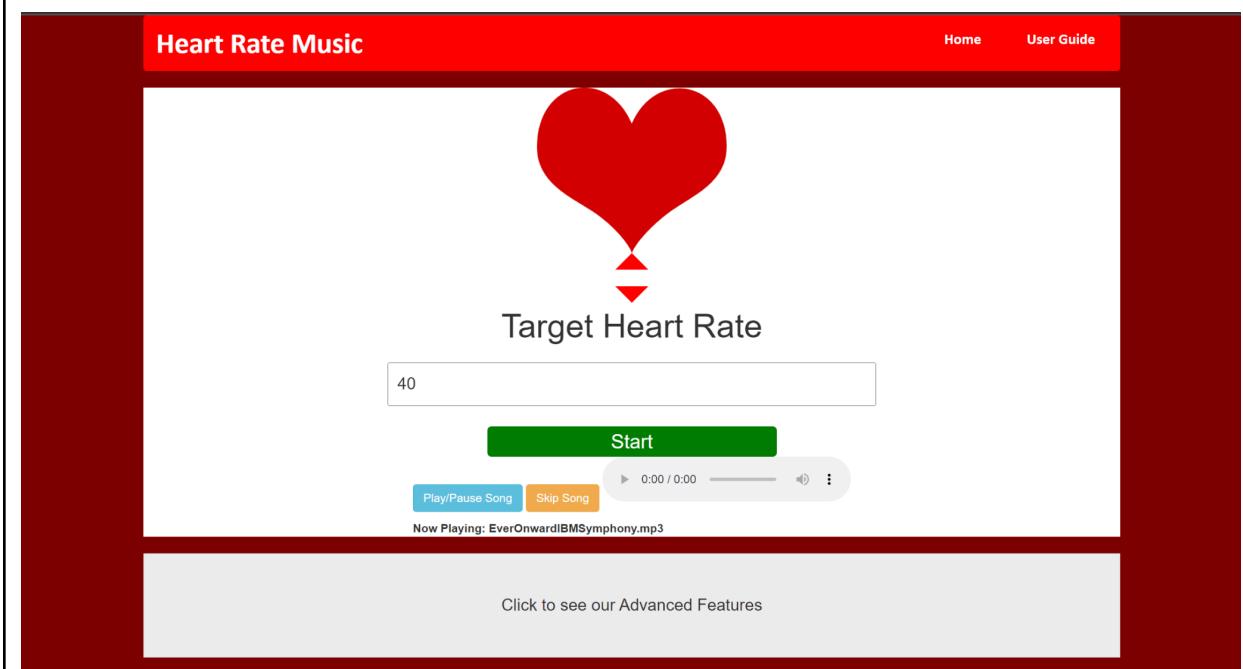
8)



9 & 10)



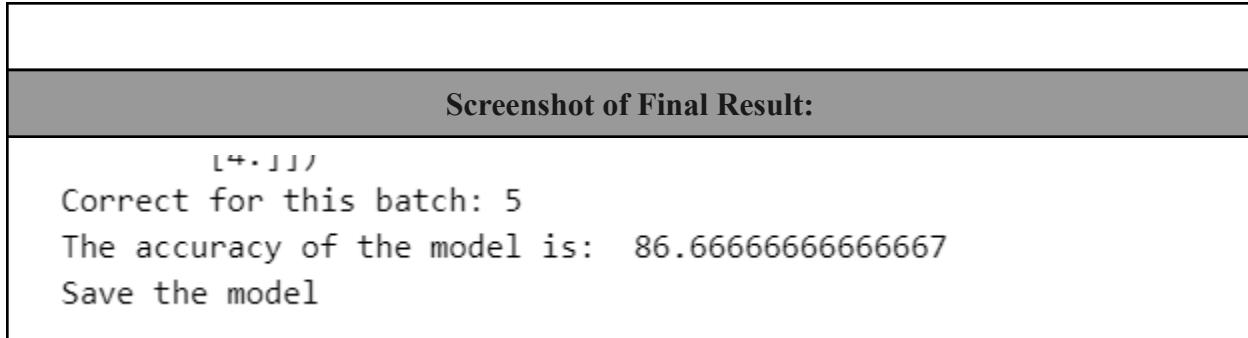
### Screenshot of Final Result:



Explain Why This Result Matches the Pass/Fail Criteria:	The songs playing when you set the target to 150 and 40 are different, therefore it is a pass
Is this a Pass or Fail?	Pass.
If fail, please note the parameters that	

created the failure.

Test Report	
<b>Test ID:</b>	TC-3-2
<b>Attempt Number:</b>	01
<b>Date:</b>	7/8/2024
<b>Test Performed by:</b>	May Wandyez
<b>Pass/Fail</b>	<b>Fail</b>
Test Case Description:	
<b>ID:</b>	TC-3-2
<b>Item to Test:</b>	Machine Learning Model
<b>Description:</b>	Test of 'select music feature's underlying machine learning model for accuracy.
<b>Pre-Conditions:</b>	Ensure 'HR.csv' is present in the same folder as 'FutureHeartBeatCompiler'
<b>Test steps:</b>	3.) Open FutureHeartBeatCompiler.py 4.) Click 'run'
<b>Expected Results:</b>	The terminal log for FutureHeartBeatCompiler.py should note the accuracy of the model, this reported value should exceed 95%.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	Accuracy of model exceeds 95%
<b>Fail Criteria:</b>	Accuracy of model is below 95%
Screenshot Confirming Preconditions met:	
	
Screenshots of Each Step:	
	

Screenshot of Final Result:	
 <pre>L4+J1J Correct for this batch: 5 The accuracy of the model is: 86.66666666666667 Save the model</pre>	
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass criteria requires 95% accuracy, however tests of the machine learning model have been unable to exceed 86% accuracy.
<b>Is this a Pass or Fail?</b>	<b>Fail</b>
<b>If fail, please note the parameters that created the failure.</b>	<p>Parameters used: Old Training Data.csv, learning rate of 0.01. 10 hidden layers.</p> <p>It should be noted that this failure may be a result of the data itself. It is possible that there are songs within the data set that do not correspond to a change in heart rate, but the heart rate changed for others reasons. This is difficult to detect in data gathering, as though heart rate tends to remain near resting heart rate, it can still change for other reasons.</p> <p>I am not convinced that higher accuracy can be achieved - predicting future biological actions requires the training data to be perfect, in cases such as cancer detection it is certain in the training data whether the labels are accurate, for this it is less certain.</p>

#### 5.2.4 UC-4: Skip Music

Test Report	
<b>Test ID:</b>	<b>TC-4-1</b>

<b>Attempt Number:</b>	01
<b>Date:</b>	7/8/2024
<b>Test Performed by:</b>	May Wandyez
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-4-1
<b>Item to Test:</b>	Skip Music Button
<b>Description:</b>	Test of skip music feature
<b>Pre-Conditions:</b>	The application is started. The user is wearing their Garmin Vivosmart 4.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1. Enable broadcast mode on your Garmin Vivosmart 4.</li> <li>2. Open the application.</li> <li>3. Click the 'start' button, a song should appear.</li> <li>4. Click the 'skip' button that appears alongside the music widget.</li> </ol>
<b>Expected Results:</b>	A song should start playing, once the skip button is hit, the first song will stop playing, and a new song will start playing.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	A different song begins playing when the skip button is hit. Different song begins playing within 3 seconds of button click.
<b>Fail Criteria:</b>	The same song continues to play or skip button does not appear. Song does not begin playing within 3 seconds of button click.
Screenshot Confirming Preconditions met:	
Screenshots of Each Step:	



## Target Heart Rate

### Start

Now Playing: Restart.mp3

II 0:02 / 2:36 ⏪ ⏴ ⏵



## Target Heart Rate

### Start

Now Playing: EverOnwardIBMSymphony.mp3

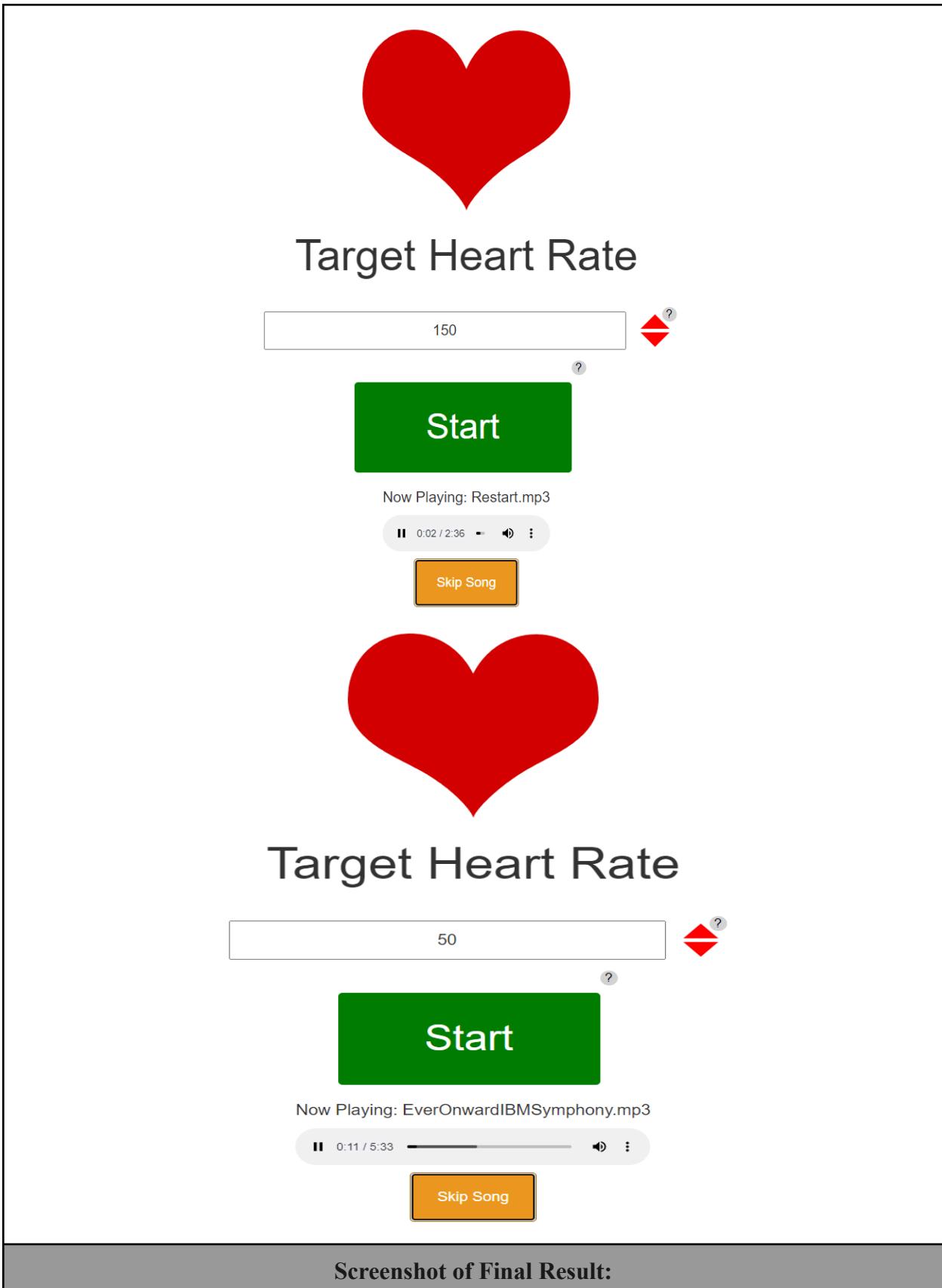
II 0:11 / 5:33 ⏪ ⏴ ⏵

Screenshot of Final Result:	
(Screenshot placeholder)	
Explain Why This Result Matches the Pass/Fail Criteria:	The skip button results in a different song being selected when pressed.
Is this a Pass or Fail?	Pass.
If fail, please note the parameters that created the failure.	

### 5.2.5 UC-5: Select Approach Path

Test Report	
Test ID:	TC-5-1
Attempt Number:	Ex. 01
Date:	Ex. 7/8/2024
Test Performed by:	Ex. May Wandyez
Pass/Fail	Ex .Pass
Test Case Description:	
ID:	TC-5-1
Item to Test:	Approach Path Buttons
Description:	Test of select approach path feature.
Pre-Conditions:	The application is started. The user is wearing their Garmin Vivosmart 4.
Test steps:	<p>5.) Enable the broadcast mode on your Garmin Vivosmart 4.</p> <p>6.) Open the application.</p> <p>7.) Select the ‘advanced features’ button on the home page of the application.</p> <p>8.) Click the ‘rollercoaster’ approach path.</p> <p>9.) Click the ‘get resting heart rate’ button to set the resting heart rate input to</p>

	<p>your current resting heart rate.</p> <ol style="list-style-type: none"> <li>10.) Set the target heart rate to your current resting heart rate.</li> <li>11.) Click the start button.</li> <li>12.) Once a song appears, click the skip button.</li> <li>13.) Repeat clicking the skip button, a song of lower tempo than your current resting heart rate should eventually be chosen.</li> </ol>
<b>Expected Results:</b>	A song of lower resting heart rate should be chosen.
<b>Priority:</b>	LOW
<b>Pass Criteria:</b>	A song of lower tempo than your current resting heart rate should be chosen.
<b>Fail Criteria:</b>	No song plays at all.
<b>Screenshot Confirming Preconditions met:</b>	
<b>Screenshots of Each Step:</b>	



<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	Using the rollercoaster mode results in different heart rate selections, indicating that the approach path works.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

### 5.2.6 UC-6: User Guide

<b>ID:</b>	TC-6-1
<b>Item to Test:</b>	User Guide
<b>Description:</b>	Test of user guide.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'User Guide' button in the navigation bar at the top of the screen.</li> <li>3.) View the user guide, click the video containing the user guide explaining to the user the features of the application.</li> <li>4.) Click the home page button in the navigation bar.</li> </ol>
<b>Expected Results:</b>	The user guide appears when the user guide button is clicked. The video appears on the user guide page, the video loads and plays when started by the user.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The user guide page appears when the user guide button is clicked, the video appears on the user guide page and is capable of being played, the home page appears again when clicked. Each page loads within 3 seconds.
<b>Fail Criteria:</b>	User cannot access user guide page, user is unable to return to home page, the video fails to load. Pages take longer than 3 seconds to load.

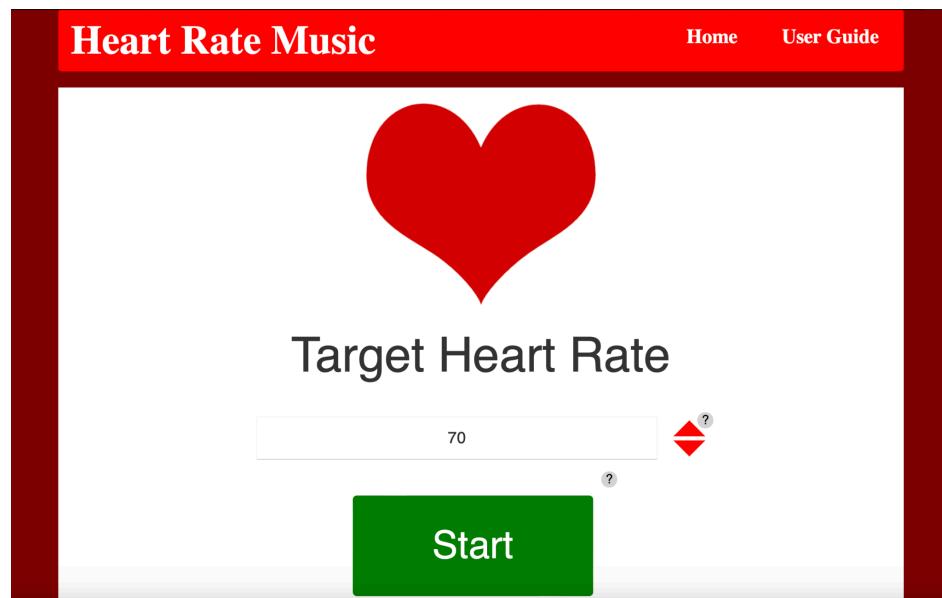
Test Report	
<b>Test ID:</b>	<b>TC-6-1</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/11/2024</b>
<b>Test Performed by:</b>	<b>Jeremy John</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	
<b>ID:</b>	<b>TC-6-1</b>
<b>Item to Test:</b>	User Guide
<b>Description:</b>	Test of user guide.
<b>Pre-Conditions:</b>	None.
<b>Test Steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'User Guide' button in the navigation bar at the top of the screen.</li> <li>3.) View the user guide, click the video containing the user guide explaining to the user the features of the application.</li> <li>4.) Click the home page button in the navigation bar.</li> </ol>
<b>Expected Results:</b>	The user guide appears when the user guide button is clicked. The video appears on the user guide page, the video loads and plays when started by the user.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The user guide page appears when the user guide button is clicked, the video appears on the user guide page and is capable of being played, the home page appears again when clicked. Each page loads within 3 seconds.
<b>Fail Criteria:</b>	User cannot access user guide page, user is unable to return to home page, the video fails

to load. Pages take longer than 3 seconds to load.

#### Screenshot Confirming Preconditions met:

N/A

#### Screenshots of Each Step:



1)



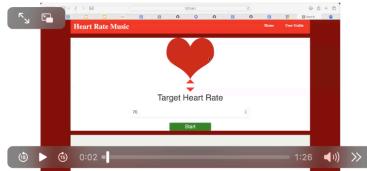
2)

## Heart Rate Music

[Home](#)    [User Guide](#)

Welcome to the user guide page

Here we will be showing you how to use our web app



Set your Garmin device to broadcast mode

1. On the heart rate widget hold up
2. Select options and go to broadcast heart rate

3)

Home

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

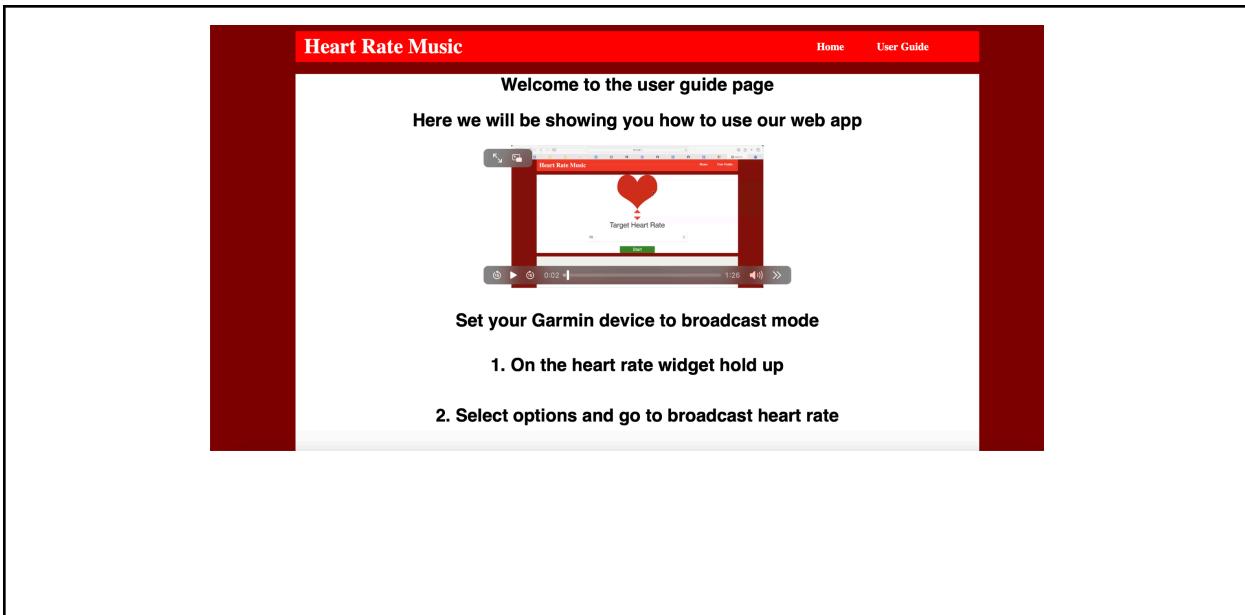
70



Start

4)

Screenshot of Final Result:



<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass criteria is met because the user guide page appears when the user guide button is clicked, the video appears on the user guide page and is capable of being played, the home page appears again when clicked. Each page loads within 3 seconds.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

### 5.2.7 UC-7: Adding Music

Test Report	
<b>Test ID:</b>	TC-7-1
<b>Attempt Number:</b>	02
<b>Date:</b>	7/22/2024
<b>Test Performed by:</b>	Ahmad Shah
<b>Pass/Fail</b>	Pass
<b>Test Case Description:</b>	

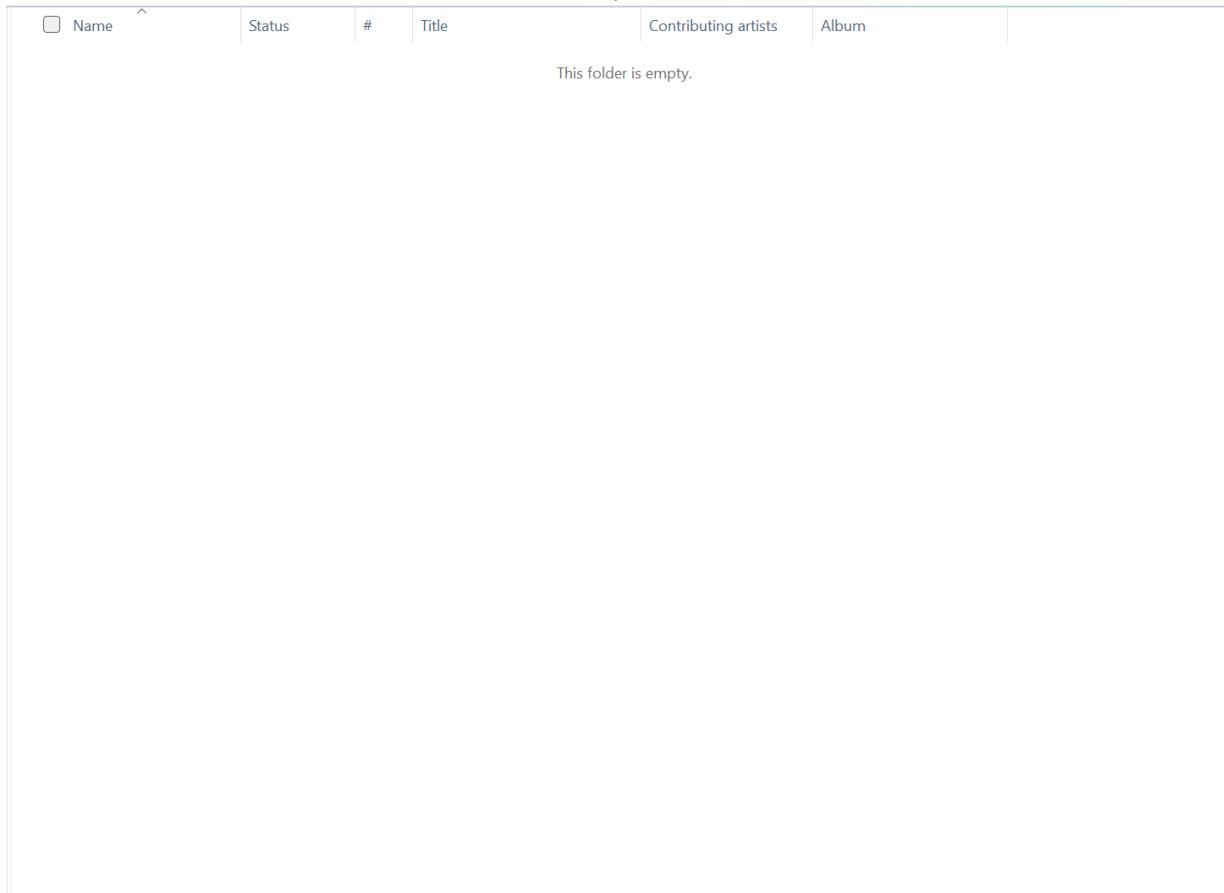
<b>ID:</b>	TC-7-1
<b>Item to Test:</b>	Add Music Button.
<b>Description:</b>	Test of adding music to the application
<b>Pre-Conditions:</b>	Have 2 MP3 files over 1 minute in length available.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Delete all contents of the ‘music’ folder where the application is stored.</li> <li>2.) Delete ‘music_characteristics.csv’ in the folder where the application is stored.</li> <li>3.) Open the application</li> <li>4.) Click on the ‘add file’ button on the home page.</li> <li>5.) Select the first mp3 file when prompted.</li> <li>6.) Success message should appear indicating that the file has been added.</li> <li>7.) Click and drag the second mp3 file over the add file button.</li> <li>8.) Success message should appear indicating the file has been added.</li> <li>9.) Open the music folder, the two music files you added should both be present.</li> <li>10.) Open music_characteristics.csv</li> </ol>
<b>Expected Results:</b>	Success message appears when file added via drag and drop, and when added via manual file selection. Added files are present in the music folder. ‘music_characteristics.csv’ successfully generated, with one row dedicated to each song added.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	File successfully added message appears after drag and drop, success message appears after manual file selection. New music_characteristics.csv generated.
<b>Fail Criteria:</b>	No file successfully added message appears. No new music_characteristics.csv generated,

no values of added files present inside music\_characteristics.csv. Added files are not present in music folder.

### Screenshot Confirming Preconditions met:

### Screenshots of Each Step:

1)



2)

Name	Status	Date modified	Type	Size
Drivers	⟳	7/21/2024 11:12 PM	File folder	
Jeremy music	⟳	7/21/2024 11:12 PM	File folder	
music	⟳	7/21/2024 11:14 PM	File folder	
static	⟳	7/21/2024 11:12 PM	File folder	
templates	⟳	7/21/2024 11:12 PM	File folder	
CSV_Handler	⟳	7/21/2024 11:12 PM	Python Source File	3 KB
FutureHeartBeatCompiler	⟳	7/21/2024 11:12 PM	Python Source File	10 KB
GenerateCSV	⟳	7/21/2024 11:12 PM	Python Source File	3 KB
GetCharacteristics	⟳	7/21/2024 11:12 PM	Python Source File	3 KB
GetHeartRate	⟳	7/21/2024 11:12 PM	Python Source File	4 KB
GetRestingHeartRate	⟳	7/21/2024 11:12 PM	Python Source File	3 KB
HBModel.pth	⟳	7/21/2024 11:12 PM	PTH File	5 KB
HeartRateFeed	⟳	7/21/2024 11:12 PM	Python Source File	6 KB
index	⟳	7/21/2024 11:12 PM	Chrome HTML Doc...	10 KB
main	⟳	7/21/2024 11:12 PM	Python Source File	1 KB
ModelDefinition	⟳	7/21/2024 11:12 PM	Python Source File	2 KB
modeltrainer	⟳	7/21/2024 11:12 PM	Python Source File	15 KB
Nixon	⟳	7/21/2024 11:12 PM	MP3 File	7,828 KB
selectMusic	⟳	7/21/2024 11:12 PM	Python Source File	11 KB
testGetHeartRate	⟳	7/21/2024 11:12 PM	Python Source File	1 KB
webapp	⟳	7/21/2024 11:12 PM	Python Source File	9 KB

3)

Heart Rate Music
Home
User Guide



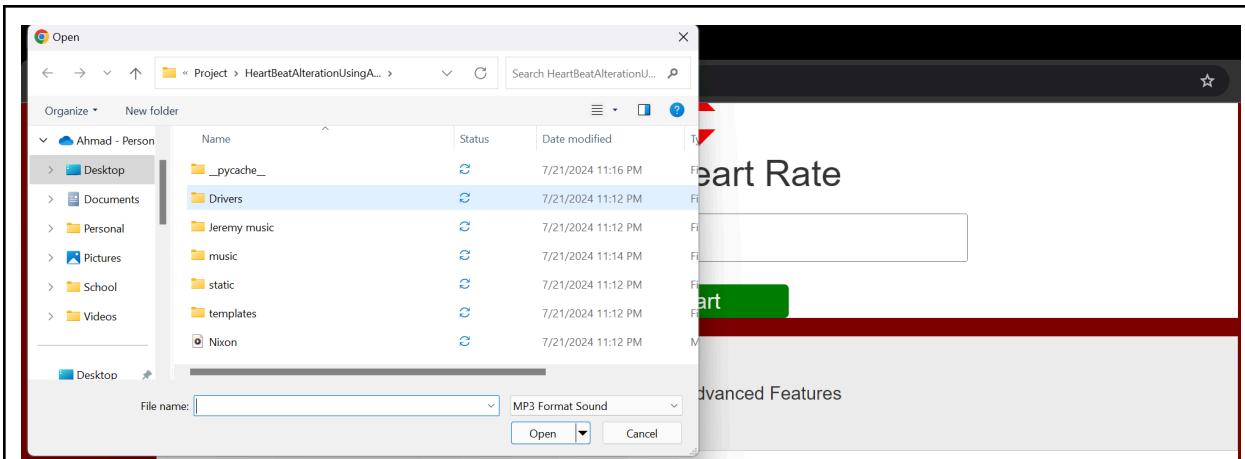
Target Heart Rate

Start

Click to see our Advanced Features

Drag and drop MP3 files here or click to upload

4)



This is the approach path selections

None Shallow Linear Steep Parabola Fastest Rollercoaster

Resting Heart Rate: 70

Press to get resting heart rate

Drag and drop MP3 files here or click to upload

6)

Heart Rate Music

127.0.0.1:5000 says

File uploaded successfully!

OK

Home

User Guide

Target Heart Rate

70

Start

Click to see our Advanced Features

This is the approach path selections

8)

127.0.0.1:5000 says  
File uploaded successfully!

OK

70

Start

Click to see our Advanced Features

This is the approach path selections

None Shallow Linear Steep Parabola Fastest Rollercoaster

Resting Heart Rate: 70 Press to get resting heart rate

Drag and drop MP3 files here or click to upload

9)

Name	#	Title	Contributing artists	Album
BTS_Lauv_-_Make_It...				
Charlie_Puth_-_Left...				

Screenshot of Final Result:

music_characteristics.csv - Excel (Unlicensed Product)											
File		Home		Insert		Page Layout		Formulas		Data	
Paste	Cut	Font	Font Size	Font Style	Font Color	Font Size	Font Style	Font Color	Font Size	Font Style	Font Color
Clipboard	Font	Font	Font Size	Font Style	Font Color	Font Size	Font Style	Font Color	Font Size	Font Style	Font Color
<b>POSSIBLE DATA LOSS</b> Some features might be lost if you save this workbook in the comma-delimited (.csv) format. <a href="#">these features, save it in an Excel file format.</a>											
A1	:	X	✓	f <sub>x</sub>	File						
1	File	Song	Leng	Average	T	Tempo	Fir	Tempo	La	Average	P
2	Charlie_Pi	99.38401	99.38401	99.38401	159.168	8.530938	19.68827	10.69381		Pitch	First
3	BTS_Lauv_	143.5547	143.5547	143.5547	229.0765	15.48504	10.50297	15.61816		Pitch	Last 30s
4											
5											
6											
7											

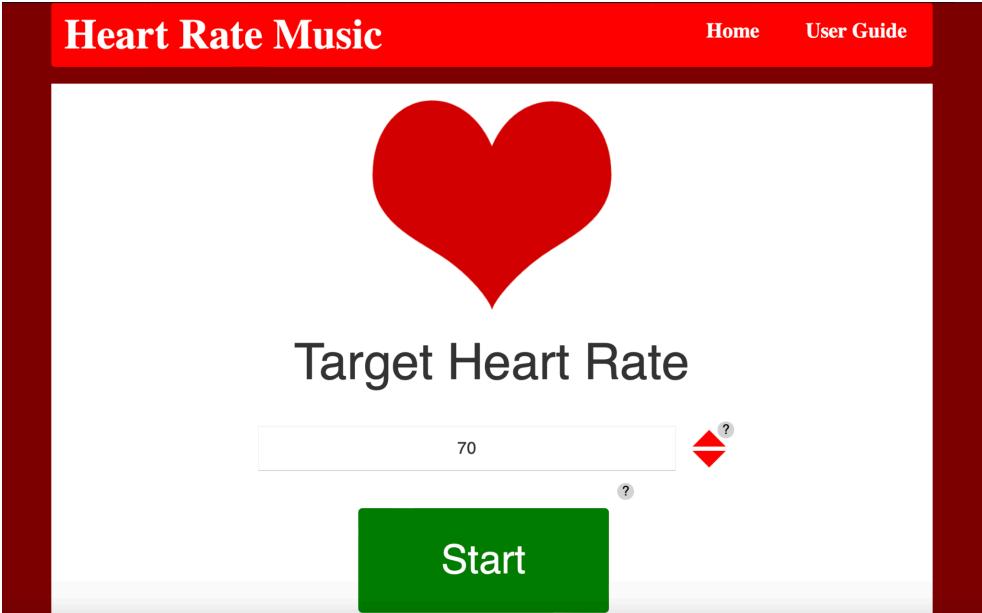
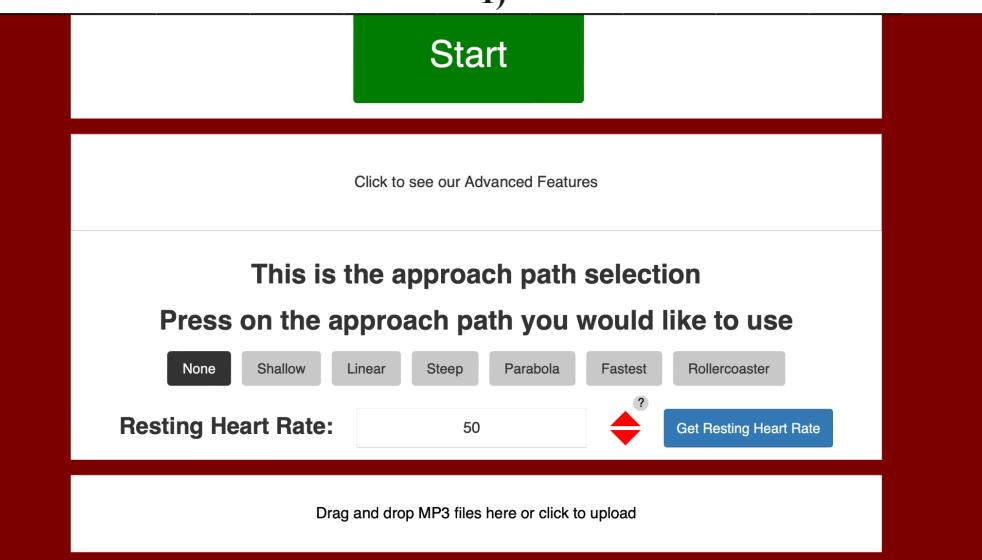
Explain Why This Result Matches the Pass/Fail Criteria:	This is a pass because both methodologies of adding music were successful, and each time a success message was displayed, the music appeared in the music folder, and a new music_characteristics.csv was generated.
Is this a Pass or Fail?	Pass.
If fail, please note the parameters that created the failure.	

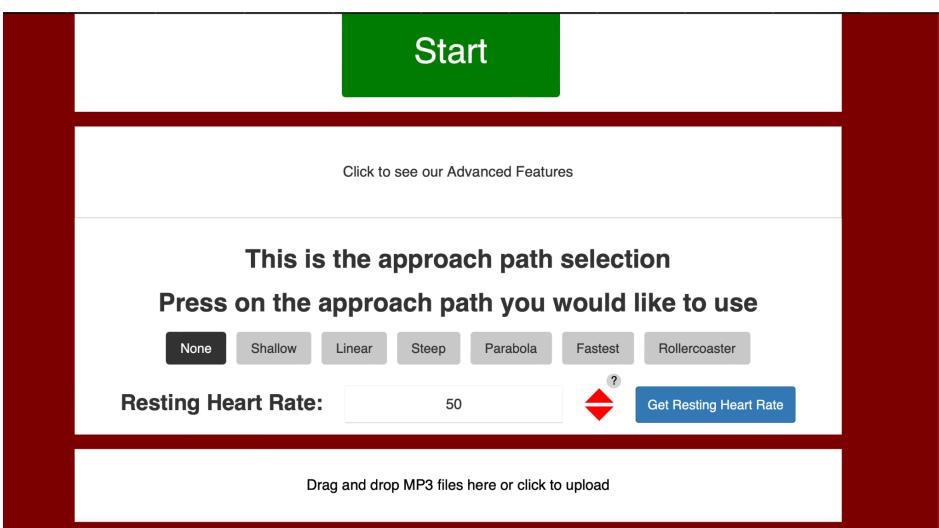
## 5.2.8 UC-8: Advanced Features

ID:	TC-8-1
Item to Test:	Advanced Features Button
Description:	Test of advanced features button.
Pre-Conditions:	None.
Test steps:	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'advanced features' button.</li> </ol>

	3.) The approach path buttons and resting heart rate buttons should appear.
<b>Expected Results:</b>	Approach path buttons and resting heart rate buttons should appear.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	Approach path buttons and resting heart rate input appear.
<b>Fail Criteria:</b>	Approach path buttons and resting heart rate input do not appear.

Test Report	
<b>Test ID:</b>	<b>TC-8-1</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/11/2024</b>
<b>Test Performed by:</b>	<b>Jeremy John</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	
<b>ID:</b>	<b>TC-8-1</b>
<b>Item to Test:</b>	Advanced Features Button
<b>Description:</b>	Test of advanced features button.
<b>Pre-Conditions:</b>	None.
<b>Test Steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'advanced features' button.</li> <li>3.) The approach path buttons and resting heart rate buttons should appear.</li> </ol>
<b>Expected Results:</b>	Approach path buttons and resting heart rate buttons should appear.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	Approach path buttons and resting heart rate

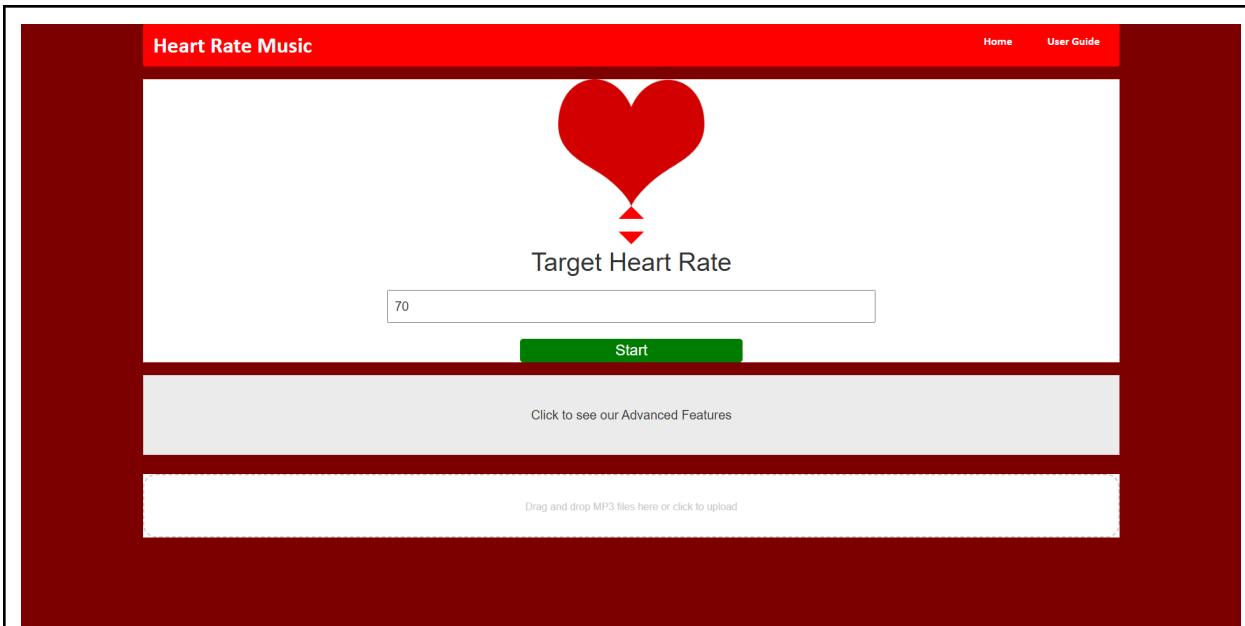
	input appear.
<b>Fail Criteria:</b>	Approach path buttons and resting heart rate input do not appear.
<b>Screenshot Confirming Preconditions met:</b>	
N/A	
<b>Screenshots of Each Step:</b>	
 <p>1)</p>	
 <p>2)</p>	

Screenshot of Final Result:	
 <p>The screenshot shows a user interface with a red sidebar on the left and a white central area. At the top center is a green 'Start' button. Below it is a link 'Click to see our Advanced Features'. The main content area contains the text 'This is the approach path selection' and 'Press on the approach path you would like to use'. Below this are seven buttons: 'None' (dark grey), 'Shallow' (light grey), 'Linear' (light grey), 'Steep' (light grey), 'Parabola' (light grey), 'Fastest' (light grey), and 'Rollercoaster' (light grey). Underneath these buttons is a section for 'Resting Heart Rate:' with a text input field containing '50', a help icon with a question mark, and a blue 'Get Resting Heart Rate' button. At the bottom is a white box with the text 'Drag and drop MP3 files here or click to upload'.</p>	
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass result criteria is met because the approach path buttons and resting heart rate input appear when the user presses advanced features.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

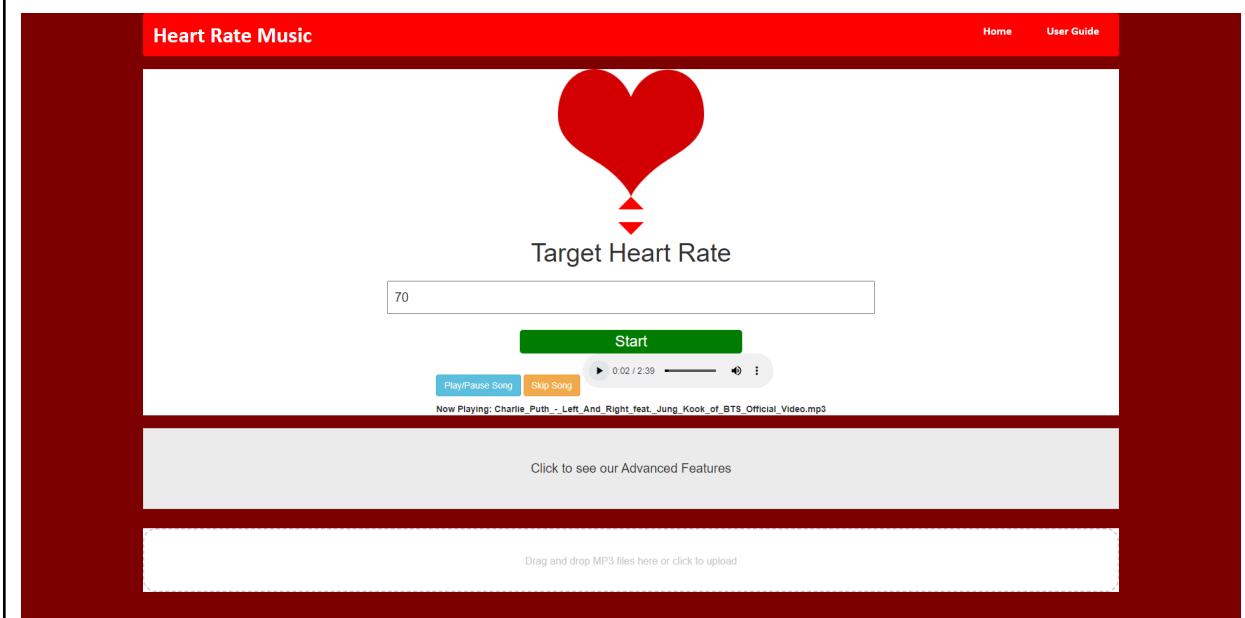
### 5.3 Non-Functional Testing.

Test Report	
<b>Test ID:</b>	TC-NF-1-1
<b>Attempt Number:</b>	02

<b>Date:</b>	7/19/2024
<b>Test Performed by:</b>	Ahmad Shah
<b>Pass/Fail</b>	Pass
<b>Test Case Description:</b>	
<b>ID:</b>	TC-NF-1-1
<b>Item to Test:</b>	Performance Requirements
<b>Description:</b>	Test of performance requirements by determining the time it takes for the start button to load music.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1) Set your Garmin Vivosmart 4 to broadcast mode.</li> <li>2) Open the desktop application.</li> <li>3) Set a timer, be prepared to click it at the same time as the start button.</li> <li>4) Click the start button.</li> <li>5) When the music loads, measure the time it took for the song to load.</li> </ol>
<b>Expected Results:</b>	The music should begin in less than 5 seconds after the start button is selected.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	The music begins playing is less than 5 seconds after the star button is selected
<b>Fail Criteria:</b>	The music begins playing after longer than 5 seconds.
<b>Screenshot Confirming Preconditions met:</b>	
N/A	
<b>Screenshots of Each Step:</b>	
2)	



### Screenshot of Final Result:



Explain Why This Result Matches the Pass/Fail Criteria:	The result is a pass because the music began playing under 5 seconds.
Is this a Pass or Fail?	Pass.
If fail, please note the parameters that created the failure.	

Test Report	
<b>Test ID:</b>	<b>TC-NF-1-2</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/19/2024</b>
<b>Test Performed by:</b>	<b>Ahmad Shah</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	
<b>ID:</b>	<b>TC-NF-1-2</b>
<b>Item to Test:</b>	Performance Requirements
<b>Description:</b>	Test of performance requirements for time to boot up the desktop application.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1) Set a timer, be prepared to start it when you start the desktop application.</li> <li>2) Start the desktop application</li> <li>3) When the desktop application screen loads, stop the timer.</li> </ol>
<b>Expected Results:</b>	The desktop application should load in less than 5 seconds.
<b>Priority:</b>	HIGH
<b>Pass Criteria:</b>	The desktop application loads in less than 5 seconds.
<b>Fail Criteria:</b>	The desktop application takes greater than 5 seconds to load.
Screenshot Confirming Preconditions met:	
N/A	
Screenshots of Each Step:	

2)

**Heart Rate Music**

Home User Guide



Target Heart Rate

**Start**

Click to see our Advanced Features

Drag and drop MP3 files here or click to upload

**Screenshot of Final Result:**

**Heart Rate Music**

Home User Guide



Target Heart Rate

**Start**

Click to see our Advanced Features

Drag and drop MP3 files here or click to upload

**Explain Why This Result Matches the Pass/Fail Criteria:**

This is a pass because the application launched in under 5 seconds.

**Is this a Pass or Fail?**

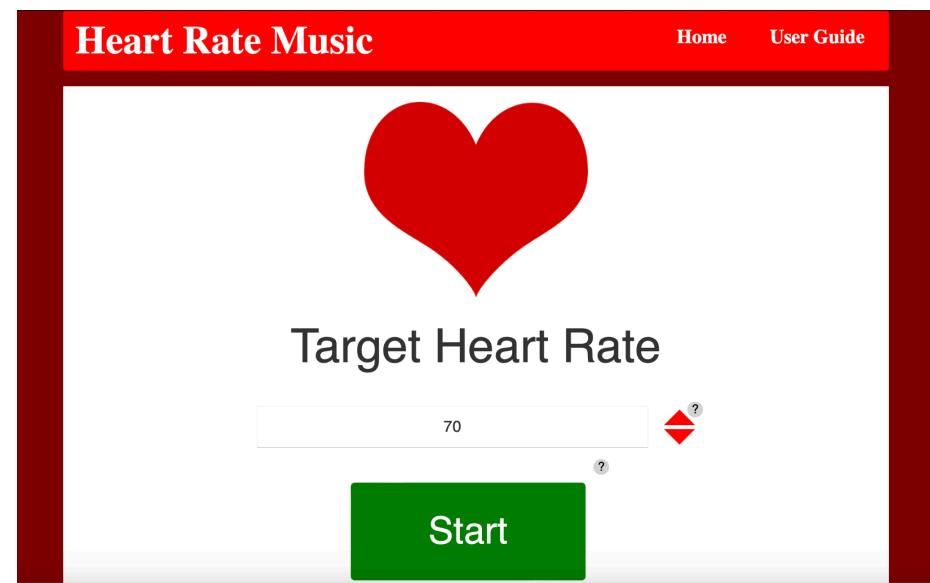
Pass.

If fail, please note the parameters that created the failure.

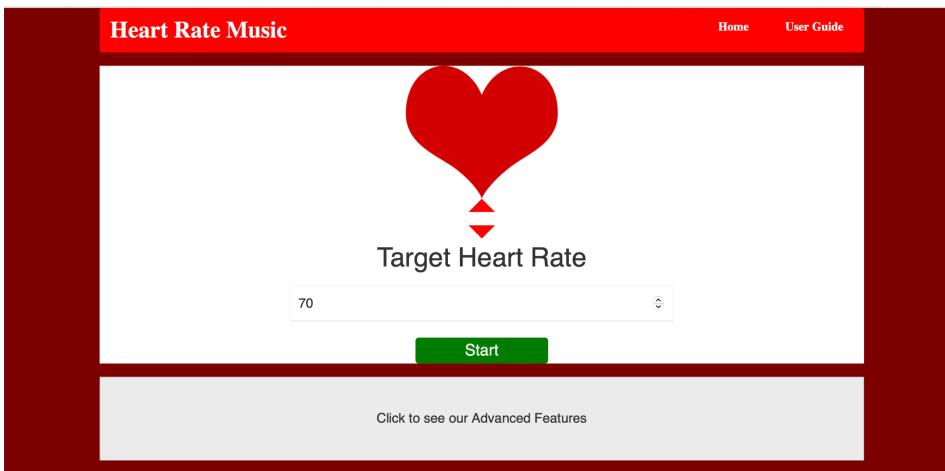
<b>ID:</b>	TC-NF-2-1
<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate range limitation feature for safety.
<b>Pre-Conditions:</b>	The application is started, no target heart rate has been entered by user.
<b>Test steps:</b>	1.) Open the application 2.) Attempt to input a value above 150 in the target heart rate box. 3.) Attempt to input a value below 40 in the target heart rate box.
<b>Expected Results:</b>	The user is unable to set the target heart rate to a value higher than 150, or lower than 40. When the user attempts to input a value higher than 150 the value will not increase above 150, and will remain at 150. If the user attempts to input a value below 40, the value will not decrease below 40, and the value will remain at 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.
<b>Fail Criteria:</b>	User is able to input a value above 150 or below 40.

Test Report	
<b>Test ID:</b>	TC-NF-2-1
<b>Attempt Number:</b>	01
<b>Date:</b>	7/11/2024
<b>Test Performed by:</b>	Jeremy John
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-NF-2-1

<b>Item to Test:</b>	Target Heart Rate Input
<b>Description:</b>	Test of target heart rate range limitation feature for safety.
<b>Pre-Conditions:</b>	The application is started, no target heart rate has been entered by user.
<b>Test Steps:</b>	<p>4.) Open the application</p> <p>5.) Attempt to input a value above 150 in the target heart rate box.</p> <p>6.) Attempt to input a value below 40 in the target heart rate box.</p>
<b>Expected Results:</b>	The user is unable to set the target heart rate to a value higher than 150, or lower than 140. When the user attempts to input a value higher than 150 the value will not increase above 150, and will remain at 150. If the user attempts to input a value below 40, the value will not decrease below 40, and the value will remain at 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	The value for the default target heart rate is visible, the value for the default target heart rate is 70.
<b>Fail Criteria:</b>	User is able to input a value above 150 or below 40.
<b>Screenshot Confirming Preconditions met:</b>	



#### Screenshots of Each Step:



1)

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

150



Start

2)

## Heart Rate Music

[Home](#)    [User Guide](#)



Target Heart Rate

40



Start

3)

Screenshot of Final Result:

**Start**

Click to see our Advanced Features

**This is the approach path selection**  
**Press on the approach path you would like to use**

None Shallow Linear Steep Parabola Fastest Rollercoaster

Resting Heart Rate:  ? **Get Resting Heart Rate**

Drag and drop MP3 files here or click to upload

1)

**Start**

Click to see our Advanced Features

**This is the approach path selection**  
**Press on the approach path you would like to use**

None Shallow Linear Steep Parabola Fastest Rollercoaster

Resting Heart Rate:  ? **Get Resting Heart Rate**

Drag and drop MP3 files here or click to upload

2)

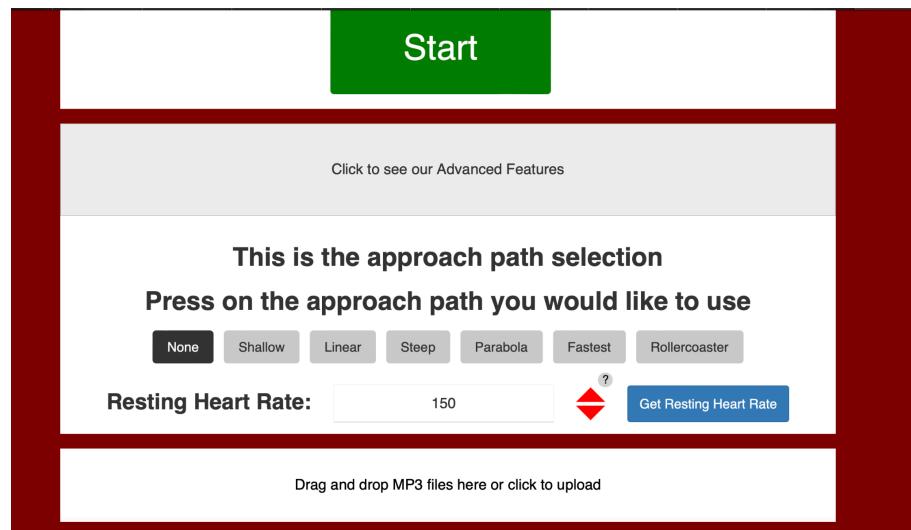
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	The pass criteria is met because the value for the default target heart rate is visible, the value for the default target heart rate is 70. And the user is unable to enter a value above 150 and below 40.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

<b>ID:</b>	<b>TC-NF-2-2</b>
<b>Item to Test:</b>	Resting Heart Rate Input

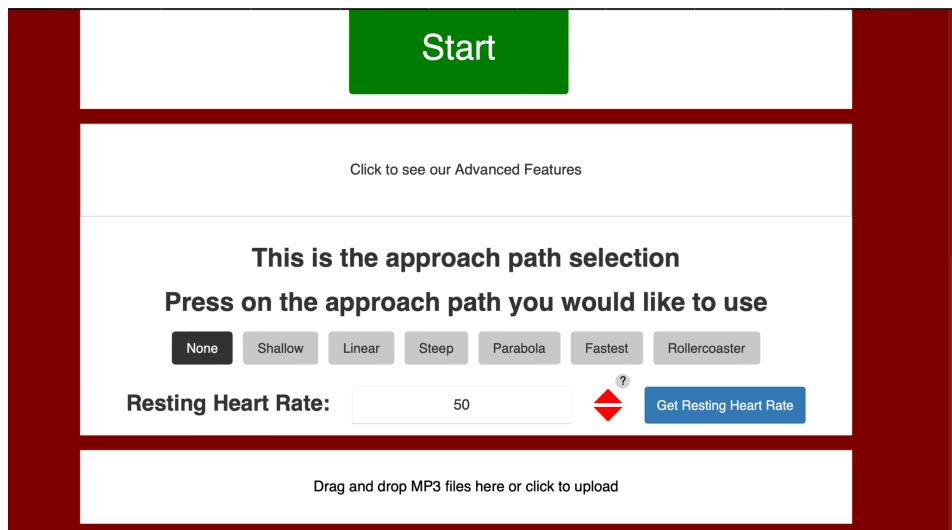
<b>Description:</b>	Test of resting heart rate range limitation feature for safety
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'advanced features' button to reveal the resting heart rate input.</li> <li>3.) Attempt to input a value greater than 150.</li> <li>4.) Attempt to input a value less than 40.</li> </ol>
<b>Expected Results:</b>	It should be impossible to enter a value greater than 150, or less than 40 within the resting heart rate input box. If the user attempts to input a value greater than 150, the value will automatically adjust to 150. If the user attempts to input a value lower than 40, the value will automatically adjust to 40.
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	User is unable to adjust resting heart rate above 150, or below 40.
<b>Fail Criteria:</b>	User is able to adjust the resting heart rate to above 150, or below 40.

Test Report	
<b>Test ID:</b>	TC-NF-2-2
<b>Attempt Number:</b>	01
<b>Date:</b>	7/12/2024
<b>Test Performed by:</b>	Jeremy John
<b>Pass/Fail</b>	Pass
Test Case Description:	
<b>ID:</b>	TC-NF-2-2
<b>Item to Test:</b>	Resting Heart Rate Input
<b>Description:</b>	Test of resting heart rate range limitation feature for safety
<b>Pre-Conditions:</b>	The application is started, no resting heart rate has been entered by user.

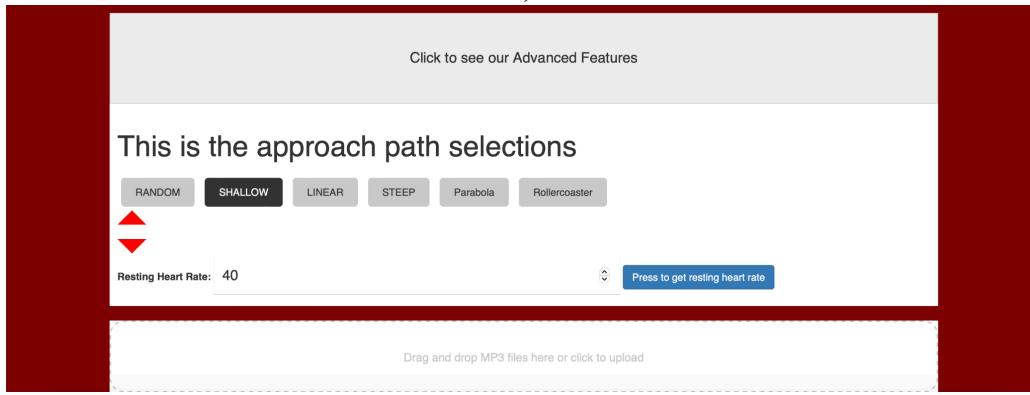
<b>Test Steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the ‘advanced features’ button to reveal the resting heart rate input.</li> <li>3.) Attempt to input a value greater than 150.</li> <li>4.) Attempt to input a value less than 40.</li> </ol>
<b>Expected Results:</b>	<p>It should be impossible to enter a value greater than 150, or less than 40 within the resting heart rate input box. If the user attempts to input a value greater than 150, the value will automatically adjust to 150. If the user attempts to input a value lower than 40, the value will automatically adjust to 40.</p>
<b>Priority:</b>	MEDIUM
<b>Pass Criteria:</b>	User is unable to adjust resting heart rate above 150, or below 40.
<b>Fail Criteria:</b>	User is able to adjust the resting heart rate to above 150, or below 40.
<b>Screenshot Confirming Preconditions met:</b>	
<b>Screenshots of Each Step:</b>	



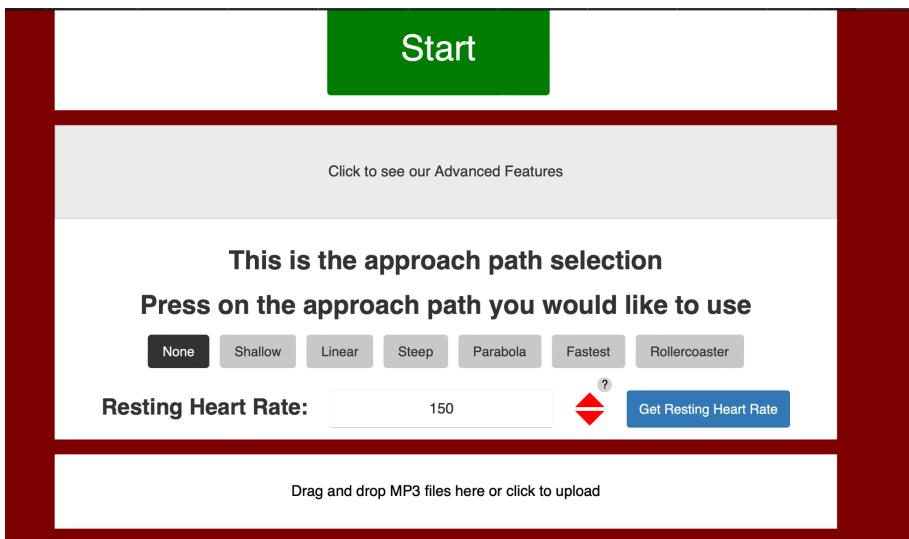
1)



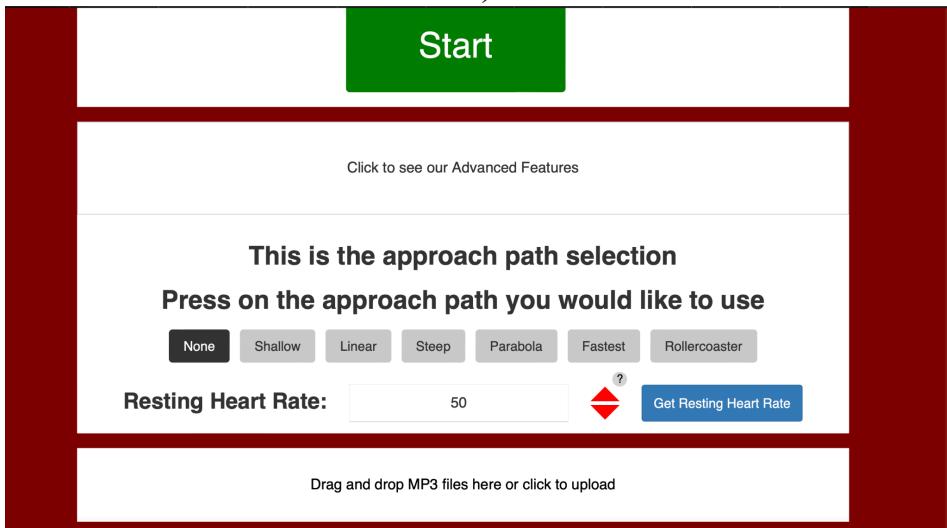
2)



### Screenshot of Final Result:



1)



2)

**Explain Why This Result Matches the Pass/Fail Criteria:**

The pass result criteria has been met because user is unable to adjust resting heart rate above 150, or below 40

**Is this a Pass or Fail?**

Pass.

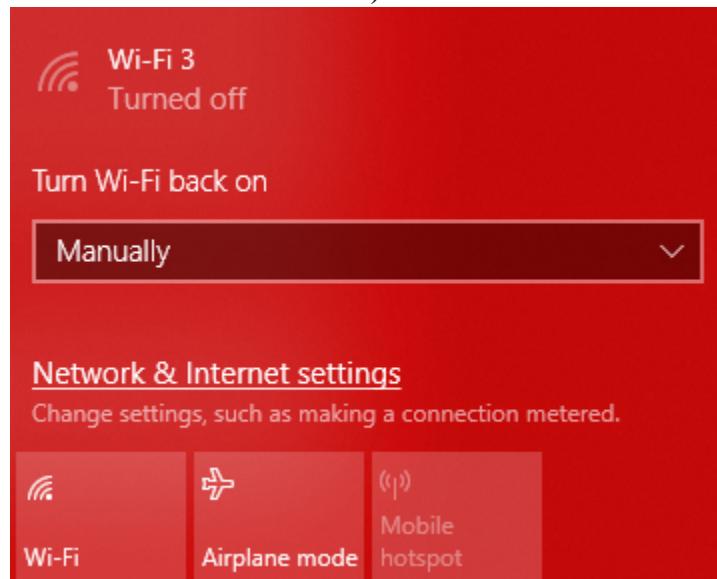
**If fail, please note the parameters that**

created the failure.	
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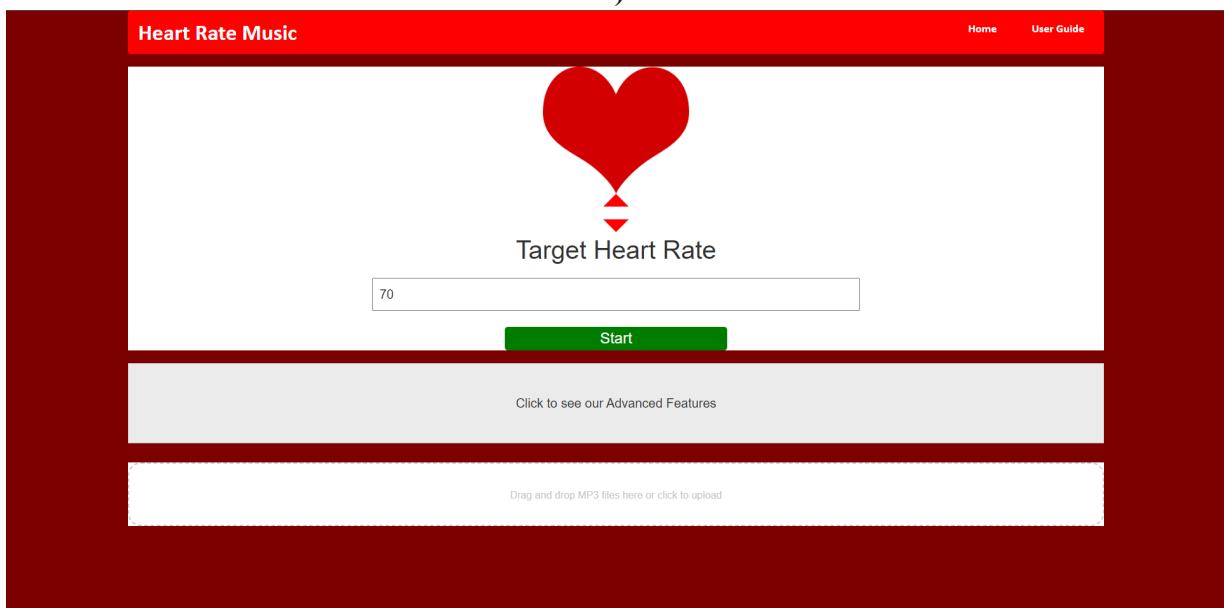
Test Report	
<b>Test ID:</b>	<b>TC-NF-3</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/22/2024</b>
<b>Test Performed by:</b>	<b>Ahmad Shah</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	
<b>ID:</b>	<b>TC-NF-3</b>
<b>Item to Test:</b>	Availability Requirements
<b>Description:</b>	Test of availability without internet.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Disconnect your computer from wifi.</li> <li>2.) Set the Garmin Vivosmart 4 to broadcast mode.</li> <li>3.) Open the desktop application.</li> <li>4.) Click the start button.</li> </ol>
<b>Expected Results:</b>	A music file should load and begin playing.
<b>Priority:</b>	LOW
<b>Pass Criteria:</b>	Music file is still selected without internet connection.
<b>Fail Criteria:</b>	Music file is not selected without internet connection. .
<b>Screenshot Confirming Preconditions met:</b>	

## Screenshots of Each Step:

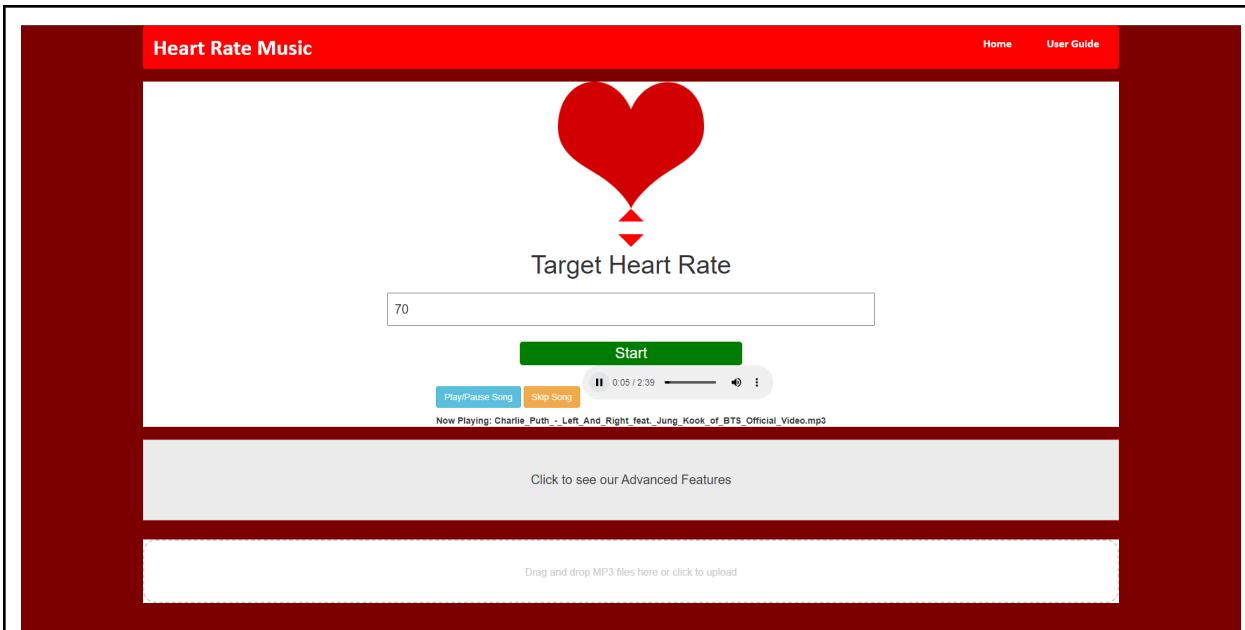
1)



3)



Screenshot of Final Result:



<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	This is a pass because a music file loaded and played with the machine being offline.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

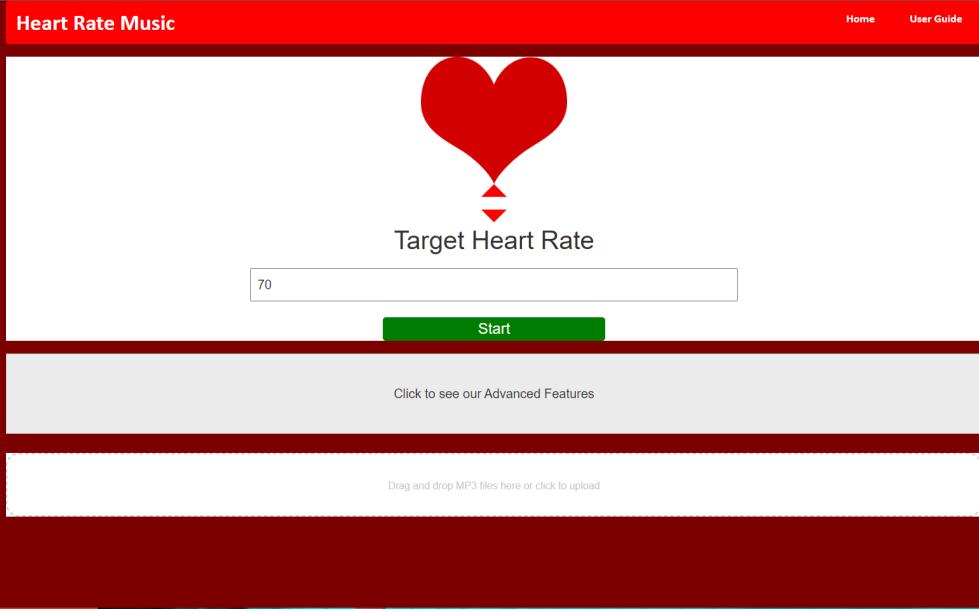
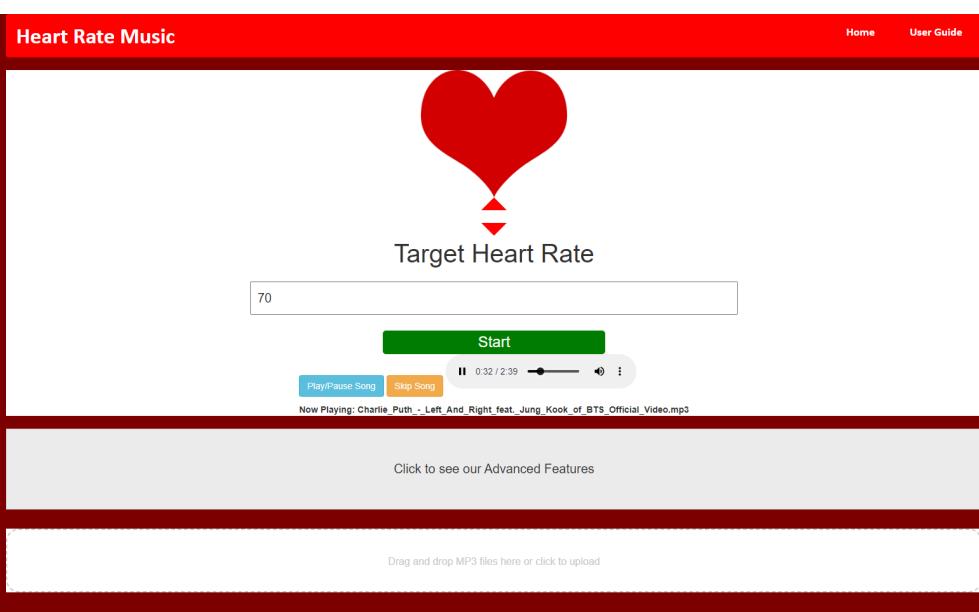
<b>ID:</b>	<b>TC-NF-4</b>
<b>Item to Test:</b>	Security Requirements
<b>Description:</b>	Testing of security, which is to ensure that no heart rate data is measured from user use of the application.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Open the application.</li> <li>2.) Click the 'advanced features' button.</li> <li>3.) The approach path buttons and resting heart rate buttons should appear.</li> </ol>
<b>Expected Results:</b>	There should be no heart rate data permanently stored within the music characteristics.csv file
<b>Priority:</b>	HIGH

<b>Pass Criteria:</b>	No heart rate data is saved.
<b>Fail Criteria:</b>	Heart rate data is saved.

<b>ID:</b>	<b>TC-NF-5</b>
<b>Item to Test:</b>	Maintainability Requirement
<b>Description:</b>	Testing of maintainability requirement, ensuring that the desktop application is compatible with most up to date software.
<b>Pre-Conditions:</b>	None.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Download the latest version of google Chrome.</li> <li>2.) Set google chrome as your default browser.</li> <li>3.) Set your Garmin Vivosmart 4 to broadcast mode.</li> <li>4.) Start the desktop application, the HTML file should be loaded in google chrome.</li> <li>5.) Select the start button.</li> </ol>
<b>Expected Results:</b>	A music file should be selected and begin playing.
<b>Priority:</b>	LOW
<b>Pass Criteria:</b>	Desktop application loads and core features of playing music is operational
<b>Fail Criteria:</b>	Desktop application does not load.

Test Report	
<b>Test ID:</b>	<b>TC-NF-6</b>
<b>Attempt Number:</b>	<b>01</b>
<b>Date:</b>	<b>7/22/2024</b>
<b>Test Performed by:</b>	<b>Ahmad Shah</b>
<b>Pass/Fail</b>	<b>Pass</b>
Test Case Description:	

<b>ID:</b>	TC-NF-6
<b>Item to Test:</b>	Portability Requirement.
<b>Description:</b>	Testing of portability feature
<b>Pre-Conditions:</b>	Possession of computer running Windows 11 operating system.
<b>Test steps:</b>	<ol style="list-style-type: none"> <li>1.) Set your Garmin Vivosmart 4 to broadcast mode</li> <li>2.) Open the desktop application</li> <li>3.) Select the start button.</li> </ol>
<b>Expected Results:</b>	A music file should be selected and begin playing.
<b>Priority:</b>	LOW
<b>Pass Criteria:</b>	Desktop application loads and core features of playing music is operational.
<b>Fail Criteria:</b>	Desktop application does not load.
<b>Screenshot Confirming Preconditions met:</b>	
N/A	
<b>Screenshots of Each Step:</b>	
2)	

	
<b>Screenshot of Final Result:</b>	
	
<b>Explain Why This Result Matches the Pass/Fail Criteria:</b>	This is a pass because the application loaded and is functional on a windows 11 machine.
<b>Is this a Pass or Fail?</b>	Pass.
<b>If fail, please note the parameters that created the failure.</b>	

## 6.0 Test Schedule:

Deadline:	Tests To Complete:
7/12/2024	TC-1-1, TC-1-2, TC-8-1, TC-2-1, TC-2-2, TC-6-1
7/15/2024	TC-2-3 TC-7-1,
7/17/2024	TC-3-1, TC-3-2
7/19/2024	TC-4-1, TC-5-1, TC-NF-1-1, TC NF -1-2, TC-NF-2-1, TC NF-2-2, TC-NF-3, TC-NF-4, TC-NF5, TC-NF-6

## 7.0 Test Environment:

The test environment consists of the following hardware, the following dependencies, and the following operating system.

Testing Environment		
Technology:	Type:	Purpose:
Garmin Vivosmart 4	Hardware	The Garmin Vivosmart 4 is the ANT+ compatible heart rate monitor. The current heart rate of the user is necessary in order to predict the future heart rate of the user.
Garmin USB ANT Stick	Hardware	The Garmin USB ANT stick acts as a radio receiver for ANT+ wireless communications. This USB stick is necessary to receive the heart rate from the Garmin Vivosmart 4.
Windows 11	Operating System	Windows 11 operating system has been identified as compatible with ANT+ communications drivers which are necessary for communicating between the application and the heart rate monitor. The testing environment must be conducted on a Windows 11 computer.
python 3.12	Dependency	python serves the general backend for this project. The testing environment must have this version of python installed.
openANT 1.3.1	Dependency	openANT is a python implementation of ANT+ wireless communications protocol - allows python programs to communicate with ANT+ heart rate monitor devices. openANT

		must be installed in the testing environment.
pyusb 1.2.1	Dependency	pyUSB is a requirement for openANT and allows python to communicate to USB devices.
librosa 0.10	Dependency	librosa is a python package for audio analysis. librosa allows audio files to be broken down to their base characteristics (tempo, pitch, length). It is necessary to break audio files down to their base characteristics in order for the machine learning model to be able to identify how a music file will impact heart rate.
PyTorch 2.3	Dependency	PyTorch is a python library for construction of machine learning models. PyTorch will be used to create a machine learning model that will predict heart rate based on music characteristics and current user heart rate.
Flask 3.0.3	Dependency	Flask allows communication between a HTML front end and a python based backend.
Flask-Bootstrap 3.3.7.0	Dependency	Allows integration of the popular 'bootstrap' framework into Flask. This allows the frontend to be more responsive and integrate javascript features.

## 14.0 Roles and Responsibilities:

Team Member:	Assigned Tests:	Additional Responsibilities:
May Wandyez	TC3-2, TC-4-1, TC-5-1, TC-NF-4, TC-NF-5.	Responsible for creating test-case template for standardization of results, ensuring other team members turn in test cases on time.
Jeremy John	TC-1-1, TC-1-2, TC-2-1, TC-2-2, TC-6-1, TC-8-1, TC-NF-2-1, TC-NF-2-2.	Responsible for front end performance and remediation of performance issues. Responsible for creating and ensuring that there is a clear on screen response for every interaction with the front end.
Ahmad Shah	TC-2-3, TC-3-1, TC-7-1, TC-NF-1-1, TC-NF-1-2, TC-NF-3, TC-NF-6.	Responsible for ensuring that data collected from the heart rate monitor is properly received and saved.

## 15.0 Traceability Matrix

<b>Functional Requirement:</b>	<b>Use Case:</b>	<b>Test Case:</b>
FR 3.2.1: Retrieve Heart Rate from ANT+ Wireless Connection	UC-3: Select Music	TC-3-1
		TC-3-2
FR 3.2.2: Establish Resting Heart Rate	UC-2: Resting Heart Rate Input	TC-2-1
		TC-2-2
		TC-2-3
FR 3.2.3: User Selects Target Heart Rate	UC-1: Target Heart Rate Input	TC-1-1
		TC-1-2
FR 3.2.4: Get Characteristics of Music In Desktop Application Music Folder	UC-7: Adding Music	TC-7-1
FR 3.2.5: User Selects Approach Path	UC-5: Select Approach path	TC-5-1
FR 3.2.6: Select Music Feature	UC-3: Select Music	TC-3-1
		TC-3-2
	UC-4: Skip music	TC-4-1
FR 3.2.8: Navigation Bar	UC-6: User Guide	TC-6-1
FR 3.2.9: User Guide Page		
FR 3.2.10: Advanced Features Page	UC-8: Advanced Features	TC-8-1

FR 3.2.11: Home Page	UC-1: Target Heart Rate Input	TC-1-1
		TC-1-2
	UC-2: Resting Heart Rate Input	TC-2-1
		TC-2-2
		TC-2-3
	UC-3:Select Music	TC-3-1
		TC-3-2
	UC-4 Skip Music	TC-4-1
	UC-5: Select Approach path	TC-5-1
	UC-7: Adding Music	TC-7-1
	UC-8: Advanced Features	TC-8-1
FR 3.2.12: Upload File	UC-7: Adding Music	TC-7-1