



# HEART RATE ADJUSTER

Technical Documentation

GROUP #12

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**14:332:452**

com.example.heartrateadjuster

## Class MainActivity

java.lang.Object

Activity

com.example.heartrateadjuster.MainActivity

```
public class MainActivity
extends Activity
```

The main screen of the application. Initializes chestStrap and audioSystem objects and sets up the UI with callbacks.

### Field Summary

#### Fields

| Modifier and Type       | Field and Description   |
|-------------------------|---|
| <b>IAudioSystem</b>     | <b>audioSystem</b><br>Audio system object, instantiated as a <b>AudioSystemFake</b> |
| <b>IHeartRateDevice</b> | <b>chestStrap</b><br>Chest strap object, instantiated as a <b>ChestStrapFake</b>    |

### Constructor Summary

#### Constructors

| Constructor and Description |
|-----------------------------|
| <b>MainActivity()</b>       |

### Method Summary

#### Methods

| Modifier and Type | Method and Description   |
|-------------------|--|
| protected void    | <b>onCreate</b> (Bundle savedInstanceState)<br>Android fundamental method, used to instantiate all UI elements with callbacks. |
| boolean           | <b>onCreateOptionsMenu</b> (Menu menu)   |

boolean

**onOptionsItemSelected**(MenuItem item)

## Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

## Field Detail

### audioSystem

public **IAudioSystem** audioSystem

Audio system object, instantiated as a **AudioSystemFake**

### chestStrap

public **IHeartRateDevice** chestStrap

Chest strap object, instantiated as a **ChestStrapFake**

## Constructor Detail

### MainActivity

public MainActivity()

## Method Detail

### onCreate

protected void onCreate(Bundle savedInstanceState)

Android fundamental method, used to instantiate all UI elements with callbacks.

#### Parameters:

savedInstanceState -

## onCreateOptionsMenu

```
public boolean onCreateOptionsMenu(Menu menu)
```

## onOptionsItemSelected

```
public boolean onOptionsItemSelected(MenuItem item)
```

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## Interface **IAudioSystem**

### All Known Implementing Classes:

[AudioSystemFake](#)

```
public interface IAudioSystem
```

Interface to the Audio System.

### Method Summary

#### Methods

| Modifier and Type | Method and Description  |
|-------------------|---|
| java.lang.String  | <b>getNowPlaying()</b><br>Gets currently playing track.                                     |
| void              | <b>setTargetHeartRate</b> (int target)<br>Sets the heart rate to be targeted by the system. |
| void              | <b>skipTrack()</b><br>Skips the current track, begins playback of next.                     |
| void              | <b>togglePlayback()</b><br>Toggles between playing and not playing.                         |

### Method Detail

#### getNowPlaying

```
java.lang.String getNowPlaying()
```

Gets currently playing track.

#### Returns:

The title of the currently playing track.

#### setTargetHeartRate

```
void setTargetHeartRate(int target)
```

Sets the heart rate to be targeted by the system.

**Parameters:**

target - The new target

## skipTrack

```
void skipTrack()
```

Skips the current track, begins playback of next.

## togglePlayback

```
void togglePlayback()
```

Toggles between playing and not playing.

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# Interface IHeartRateDevice

**All Known Implementing Classes:**

[ChestStrapFake](#)

public interface **IHeartRateDevice**

Interface with the Chest Strap.

## Method Summary

**Methods**

| Modifier and Type | Method and Description   |
|-------------------|--|
| int               | <b><a href="#">getCurrentHeartRate()</a></b><br>Gets current heart rate from device. |

## Method Detail

### **[getCurrentHeartRate](#)**

int [getCurrentHeartRate\(\)](#)

Gets current heart rate from device.

**Returns:**

Current heart rate.

com.example.heartrateadjuster

## Class AudioSystemFake

java.lang.Object

com.example.heartrateadjuster.AudioSystemFake

### All Implemented Interfaces:

IAudioSystem

```
public class AudioSystemFake
extends java.lang.Object
implements IAudioSystem
```

Implementation of [IAudioSystem](#) for faking Audio System with UI element.

## Constructor Summary

### Constructors

#### Constructor and Description

[AudioSystemFake\(\)](#)

## Method Summary

### Methods

| Modifier and Type | Method and Description  |
|-------------------|---|
| java.lang.String  | <a href="#">getNowPlaying()</a><br>Returns system time for a unique String.                         |
| void              | <a href="#">setTargetHeartRate(int target)</a><br>Sets the heart rate to be targeted by the system. |
| void              | <a href="#">skipTrack()</a><br>Skips the current track, begins playback of next.                    |
| void              | <a href="#">togglePlayback()</a><br>Toggles between playing and not playing.                        |

### Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait



## Constructor Detail

### AudioSystemFake

```
public AudioSystemFake()
```

## Method Detail

### getNowPlaying

```
public java.lang.String getNowPlaying()
```

Returns system time for a unique String.

**Specified by:**

`getNowPlaying` in interface `IAudioSystem`

**Returns:**

Current system time as String.

### setTargetHeartRate

```
public void setTargetHeartRate(int target)
```

**Description copied from interface: `IAudioSystem`**

Sets the heart rate to be targeted by the system.

**Specified by:**

`setTargetHeartRate` in interface `IAudioSystem`

**Parameters:**

target - The new target

### skipTrack

```
public void skipTrack()
```

**Description copied from interface: `IAudioSystem`**

Skips the current track, begins playback of next.

**Specified by:**

`skipTrack` in interface `IAudioSystem`

**togglePlayback**

```
public void togglePlayback()
```

**Description copied from interface: `IAudioSystem`**

Toggles between playing and not playing.

**Specified by:**

`togglePlayback` in interface `IAudioSystem`

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com.example.heartrateadjuster

## Class ChestStrapFake

java.lang.Object

com.example.heartrateadjuster.ChestStrapFake

### All Implemented Interfaces:

[IHeartRateDevice](#)

```
public class ChestStrapFake
extends java.lang.Object
implements IHeartRateDevice
```

Implementation of [IHeartRateDevice](#) for faking chest strap data with UI element.

## Constructor Summary

### Constructors

| Constructor and Description |
|-----------------------------|
|-----------------------------|

|                                  |
|----------------------------------|
| <a href="#">ChestStrapFake()</a> |
|----------------------------------|

## Method Summary

### Methods

| Modifier and Type | Method and Description |
|-------------------|------------------------|
|-------------------|------------------------|

|      |  |
|------|--|
| int  | <a href="#">getCurrentHeartRate()</a><br>Gets the internally stored heart rate measurement.              |
| void | <a href="#">setCurrentHeartRate(int heartrate)</a><br>Sets the internally stored heart rate measurement. |

### Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

## Constructor Detail

### ChestStrapFake

```
public ChestStrapFake()
```

## Method Detail

### getCurrentHeartRate

```
public int getCurrentHeartRate()
```

Gets the internally stored heart rate measurement.

**Specified by:**

[getCurrentHeartRate](#) in interface [IHeartRateDevice](#)

**Returns:**

The internally stored heart rate measurement.

### setCurrentHeartRate

```
public void setCurrentHeartRate(int heartrate)
```

Sets the internally stored heart rate measurement.

**Parameters:**

heartrate - The new heart rate.

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com.example.datamanagement

# Class DataAssembler

java.lang.Object  
    SQLiteOpenHelper  
        com.example.datamanagement.DataAssembler

public class **DataAssembler**  
extends SQLiteOpenHelper

## Constructor Summary

| Constructors                |                   |
|-----------------------------|-------------------|
| Constructor and Description |                   |
| <b>DataAssembler</b>        | (Context context) |

## Method Summary

| Methods                         |   |
|---------------------------------|---|
| Modifier and Type               | Method and Description  |
| void                            | <b>deleteRecord</b> ( <b>Record</b> record)<br>This function deletes a record from the database.  |
| java.util.List< <b>Record</b> > | <b>getAllRecords</b> ()<br>This function returns a list of all the records in the database  |
| int                             | <b>getRecordsCount</b> ()<br>This function the total number of Record objects in the database   |
| void                            | <b>onCreate</b> (SQLiteDatabase db)<br>This method sets up SQL Database with the arrangement of its parameters                                      |
| void                            | <b>onUpgrade</b> (SQLiteDatabase db, int oldVersion, int newVersion)<br>This function will upgrade the SQLite database if a new version is released |
| int                             | <b>updateRecord</b> ( <b>Record</b> record)<br>This function allows a Record to be updated with new information.                                    |

| Methods inherited from class java.lang.Object                             |  |
|---|--|
| equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait |  |

## Constructor Detail

### DataAssembler

```
public DataAssembler(Context context)
```

**Parameters:**

context -

## Method Detail

### onCreate

```
public void onCreate(SQLiteDatabase db)
```

This method sets up SQL Database with the arrangement of its parameters

**Parameters:**

db - This is the SQLite database to be loaded.

### onUpgrade

```
public void onUpgrade(SQLiteDatabase db,  
                      int oldVersion,  
                      int newVersion)
```

This function will upgrade the SQLite database if a new version is released

**Parameters:**

The - parameters are the SQLite database object, and the integers denoting the old and new versions

### getAllRecords

```
public java.util.List<Record> getAllRecords()
```

This function returns a list of all the records in the database

**Returns:**

A list containing all the Record objects in the database is returned

### updateRecord

```
public int updateRecord(Record record)
```

This function allows a Record to be updated with new information.

**Parameters:**

record - The parameter is the record object to be updated.

**Returns:**

Returns a 1 if successful

## deleteRecord

```
public void deleteRecord(Record record)
```

This function deletes a record from the database.

**Parameters:**

record - The function takes the record to be deleted as an argument and returns nothing

## getRecordsCount

```
public int getRecordsCount()
```

This function the total number of Record objects in the database

**Returns:**

An integer containing the number of Records is returned.

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com.example.datamanagement

# Class GraphDataActivity

java.lang.Object  
Activity  
com.example.datamanagement.GraphDataActivity

```
public class GraphDataActivity
extends Activity
```

The GraphDataActivity is called when the Graph button is pressed.

Author:

nikhil

## Constructor Summary

Constructors

| Constructor and Description         |
|-------------------------------------|
| <a href="#">GraphDataActivity()</a> |

## Method Summary

Methods

| Modifier and Type | Method and Description                          |
|-------------------|---|
| boolean           | <a href="#">onCreateOptionsMenu</a> (Menu menu) |

| Methods inherited from class java.lang.Object  |
|--|
| <code>equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait</code> |

## Constructor Detail

| GraphDataActivity                     |
|---------------------------------------|
| <pre>public GraphDataActivity()</pre> |



## Method Detail

### onCreateOptionsMenu

```
public boolean onCreateOptionsMenu(Menu menu)
```

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com.example.datamanagement

# Class MainActivity

java.lang.Object  
Activity  
com.example.datamanagement.MainActivity

public class MainActivity  
extends Activity

## Constructor Summary

### Constructors

| Constructor and Description |
|-----------------------------|
|-----------------------------|

|                |
|----------------|
| MainActivity() |
|----------------|

## Method Summary

### Methods

| Modifier and Type | Method and Description  |
|-------------------|---|
| void              | <b>graphData</b> (View view)<br>The graphData function is called when the Graph button is pressed; it initiates the activity which graphs the data      |
| boolean           | <b>onCreateOptionsMenu</b> (Menu menu)  |
| void              | <b>retrieve</b> (View view)<br>The Retrieve function is called when the Retrieve button is pressed; it initiates the activity which retrieves the data. |
| void              | <b>store</b> (View view)<br>The store function is called when the Store button is pressed; it initiates the activity which stores the data.             |

### Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

## Constructor Detail

### MainActivity

```
public MainActivity()
```

## Method Detail

### retrieve

```
public void retrieve(View view)
```

The Retrieve function is called when the Retrieve button is pressed; it initiates the activity which retrieves the data.

**Parameters:**

view - The function takes the current view as a parameter since the initiator is a button press.

### store

```
public void store(View view)
```

The store function is called when the Store button is pressed; it initiates the activity which stores the data.

**Parameters:**

view - The button press from the current view is used to initiate this function.

### graphData

```
public void graphData(View view)
```

The graphData function is called when the Graph button is pressed; it initiates the activity which graphs the data

**Parameters:**

view -

### onCreateOptionsMenu

```
public boolean onCreateOptionsMenu(Menu menu)
```



com.example.datamanagement

# Class Record

java.lang.Object  
com.example.datamanagement.Record

```
public class Record
extends java.lang.Object
```

The Record class is used to hold the heart rate, time stamp, artist, song, and genre at a specific point in time.

## Author:

nikhil

## Constructor Summary

### Constructors

| Constructor and Description   |
|---|
| <b>Record()</b><br><b>Record</b> (int heartRate, int timeStamp, java.lang.String Artist, java.lang.String Genre, java.lang.String Song)<br>This constructor initializes the data members of the Record object |

## Method Summary

### Methods

| Modifier and Type | Method and Description  |
|-------------------|---|
| java.lang.String  | <b>getArtist()</b><br>This returns the Artist of the Record         |
| java.lang.String  | <b>getGenre()</b><br>This returns the Genre of the Record           |
| int               | <b>getHeartRate()</b><br>This returns the heart rate of the Record. |
| java.lang.String  | <b>getSong()</b><br>This returns the Song of the Record             |
| int               | <b>getTimeStamp()</b><br>This returns the time stamp of the Record. |
| void              | <b>setArtist</b> (java.lang.String newArtist)                       |

|      |   |
|------|---|
| void | This sets the Artist of the Record<br><b>setGenre</b> (java.lang.String newGenre) |
|      | This sets the Genre of the Record   |
| void | <b>setHeartRate</b> (int newRate)   |
|      | This sets the heart rate of the Record  |
| void | <b>setSong</b> (java.lang.String newSong)   |
|      | This sets the Song of the Record  |
| void | <b>setTimeStamp</b> (int newStamp)  |
|      | This sets the time stamp of the Record  |

## Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

## Constructor Detail

### Record

```
public Record()
```

### Record

```
public Record(int heartRate,
              int timeStamp,
              java.lang.String Artist,
              java.lang.String Genre,
              java.lang.String Song)
```

This constructor initializes the data members of the Record object

#### Parameters:

heartRate - : This is the heart rate retrieved from the chest strap

timeStamp - : This is the time stamp retrieved from the Android phone

Artist - : The Artist name is provided by the Music Module

Genre - : The Genre is provided by the Music Module

Song - : The Song is provided by the Music Module

## Method Detail

### setHeartRate

```
public void setHeartRate(int newRate)
```

This sets the heart rate of the Record

**Parameters:**

newRate - This is the new rate to be set

## getHeartRate

```
public int getHeartRate()
```

This returns the heart rate of the Record.

**Returns:**

The heart rate is returned as an integer

## setTimeStamp

```
public void setTimeStamp(int newStamp)
```

This sets the time stamp of the Record

**Parameters:**

newStamp - This is the new time stamp to be set

## getTimeStamp

```
public int getTimeStamp()
```

This returns the time stamp of the Record.

**Returns:**

The time stamp is returned as an integer

## setArtist

```
public void setArtist(java.lang.String newArtist)
```

This sets the Artist of the Record

**Parameters:**

newArtist - This is the new Artist to be set

## getArtist

```
public java.lang.String getArtist()
```

This returns the Artist of the Record

**Returns:**

The Artist is returned as a String

## setGenre

```
public void setGenre(java.lang.String newGenre)
```

This sets the Genre of the Record

**Parameters:**

newGenre - This is the new genre to be set

## getGenre

```
public java.lang.String getGenre()
```

This returns the Genre of the Record

**Returns:**

The Genre is returned as a string

## setSong

```
public void setSong(java.lang.String newSong)
```

This sets the Song of the Record

**Parameters:**

newSong - This is the new song to be set

## getSong

```
public java.lang.String getSong()
```

This returns the Song of the Record

**Returns:**

The Song is returned as a string





com.example.datamanagement

# Class RetrieveActivity

java.lang.Object  
Activity  
com.example.datamanagement.RetrieveActivity

public class **RetrieveActivity**  
extends Activity

## Constructor Summary

| Constructors                       |
|------------------------------------|
| Constructor and Description        |
| <a href="#">RetrieveActivity()</a> |

## Method Summary

| Methods   |   |
|---|---|
| Modifier and Type   | Method and Description                          |
| boolean   | <a href="#">onCreateOptionsMenu</a> (Menu menu) |
| Methods inherited from class java.lang.Object                             |   |
| equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait |   |

## Constructor Detail

| RetrieveActivity          |
|---------------------------|
| public RetrieveActivity() |

# Method Detail

## onCreateOptionsMenu

```
public boolean onCreateOptionsMenu(Menu menu)
```

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com.example.datamanagement

# Class StoreActivity

java.lang.Object  
Activity  
com.example.datamanagement.StoreActivity

public class **StoreActivity**  
extends Activity

## Constructor Summary

### Constructors

| Constructor and Description     |
|---------------------------------|
| <a href="#">StoreActivity()</a> |

## Method Summary

### Methods

| Modifier and Type | Method and Description                          |
|-------------------|---|
| boolean           | <a href="#">onCreateOptionsMenu</a> (Menu menu) |

### Methods inherited from class java.lang.Object

|   |
|---|
| <a href="#">equals</a> , <a href="#">getClass</a> , <a href="#">hashCode</a> , <a href="#">notify</a> , <a href="#">notifyAll</a> , <a href="#">toString</a> , <a href="#">wait</a> , <a href="#">wait</a> , <a href="#">wait</a> |
|---|

## Constructor Detail

| StoreActivity                     |
|-----------------------------------|
| <pre>public StoreActivity()</pre> |

# Method Detail

## onCreateOptionsMenu

```
public boolean onCreateOptionsMenu(Menu menu)
```

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# Class LinePlot

java.lang.Object  
LinePlot

```
public class LinePlot
extends java.lang.Object
```

This is a sample script to test out graphing randomized heart rates vs time. See the comments in code for more descriptions.

Author:

nikhil

## Constructor Summary

Constructors

| Constructor and Description |
|-----------------------------|
| <a href="#">LinePlot()</a>  |

## Method Summary

Methods

| Modifier and Type | Method and Description                         |
|-------------------|--|
| static void       | <a href="#">main</a> (java.lang.String[] args) |

## Methods inherited from class java.lang.Object

|   |
|---|
| <a href="#">equals</a> , <a href="#">getClass</a> , <a href="#">hashCode</a> , <a href="#">notify</a> , <a href="#">notifyAll</a> , <a href="#">toString</a> , <a href="#">wait</a> , <a href="#">wait</a> , <a href="#">wait</a> |
|---|

## Constructor Detail

| LinePlot                     |
|------------------------------|
| <pre>public LinePlot()</pre> |

## Method Detail

### main

```
public static void main(java.lang.String[] args)
```

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