



HEART RATE ADJUSTER

Technical Documentation

GROUP #12

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Software Engineering

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
IAudioSystem	audioSystem Audio system object, instantiated as a AudioSystemFake
IHeartRateDevice	chestStrap Chest strap object, instantiated as a ChestStrapFake

Constructor Summary

Constructors

Constructor and Description
MainActivity()

Method Summary

Methods

Modifier and Type	Method and Description
protected void	onCreate (Bundle savedInstanceState) Android fundamental method, used to instantiate all UI elements with callbacks.
boolean	onCreateOptionsMenu (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)
```

[Package](#) [Class](#) [Tree](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

Summary: [Nested](#) | [Field](#) | [Constr](#) | [Method](#) Detail: [Field](#) | [Constr](#) | [Method](#)

com.example.heartrateadjuster

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	getNowPlaying() Gets currently playing track.
void	setTargetHeartRate (int target) Sets the heart rate to be targeted by the system.
void	skipTrack() Skips the current track, begins playback of next.
void	togglePlayback() 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.

Package **Class** Tree Help

Prev Class **Next Class** Frames No Frames All Classes

Summary: Nested | Field | Constr | [Method](#) Detail: Field | Constr | [Method](#)

com.example.heartrateadjuster

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	getCurrentHeartRate() 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	getNowPlaying() Returns system time for a unique String.
void	setTargetHeartRate(int target) Sets the heart rate to be targeted by the system.
void	skipTrack() Skips the current track, begins playback of next.
void	togglePlayback() 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`

[Package](#)[Class](#)[Tree](#)[Help](#)[Prev Class](#)[Next Class](#)[Frames](#)[No Frames](#)[All Classes](#)[Summary: Nested](#) | [Field](#) | [Constr](#) | [Method](#)[Detail: Field](#) | [Constr](#) | [Method](#)

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

ChestStrapFake()

Method Summary

Methods

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

int	getCurrentHeartRate() Gets the internally stored heart rate measurement.
void	setCurrentHeartRate(int heartrate) 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.

Package [Class](#) [Tree](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

Summary: [Nested](#) | [Field](#) | [Constr](#) | [Method](#) [Detail: Field](#) | [Constr](#) | [Method](#)

com.example.datamanagement

Class DataAssembler

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

public class **DataAssembler**
extends SQLiteOpenHelper

Constructor Summary

Constructors
Constructor and Description
DataAssembler (Context context)

Method Summary

Methods

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

[Package](#) [Class](#) [Use](#) [Tree](#) [Deprecated](#) [Index](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

[Summary](#): [Nested](#) | [Field](#) | [Constr](#) | [Method](#) [Detail](#): [Field](#) | [Constr](#) | [Method](#)

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
GraphDataActivity()

Method Summary

Methods

Modifier and Type	Method and Description
boolean	onCreateOptionsMenu (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)
```

[Package](#) [Class](#) [Use](#) [Tree](#) [Deprecated](#) [Index](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

Summary: [Nested](#) | [Field](#) | [Constr](#) | [Method](#) Detail: [Field](#) | [Constr](#) | [Method](#)

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	graphData (View view) The graphData function is called when the Graph button is pressed; it initiates the activity which graphs the data
boolean	onCreateOptionsMenu (Menu menu)
void	retrieve (View view) The Retrieve function is called when the Retrieve button is pressed; it initiates the activity which retrieves the data.
void	store (View view) 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
Record() 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

Method Summary

Methods

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

void	This sets the Artist of the Record setGenre (java.lang.String newGenre)
	This sets the Genre of the Record
void	setHeartRate (int newRate)
	This sets the heart rate of the Record
void	setSong (java.lang.String newSong)
	This sets the Song of the Record
void	setTimeStamp (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
RetrieveActivity()

Method Summary

Methods	
Modifier and Type	Method and Description
boolean	onCreateOptionsMenu (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)
```

[Package](#) [Class](#) [Use](#) [Tree](#) [Deprecated](#) [Index](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

Summary: [Nested](#) | [Field](#) | [Constr](#) | [Method](#) Detail: [Field](#) | [Constr](#) | [Method](#)

com.example.datamanagement

Class StoreActivity

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

public class StoreActivity
extends Activity

Constructor Summary

Constructors
Constructor and Description
StoreActivity()

Method Summary

Methods	
Modifier and Type	Method and Description
boolean	onCreateOptionsMenu (Menu menu)
Methods inherited from class java.lang.Object	
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait	

Constructor Detail

StoreActivity
public StoreActivity()

Method Detail

onCreateOptionsMenu

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

[Package](#) [Class](#) [Use](#) [Tree](#) [Deprecated](#) [Index](#) [Help](#)

[Prev Class](#) [Next Class](#) [Frames](#) [No Frames](#) [All Classes](#)

Summary: [Nested](#) | [Field](#) | [Constr](#) | [Method](#) Detail: [Field](#) | [Constr](#) | [Method](#)