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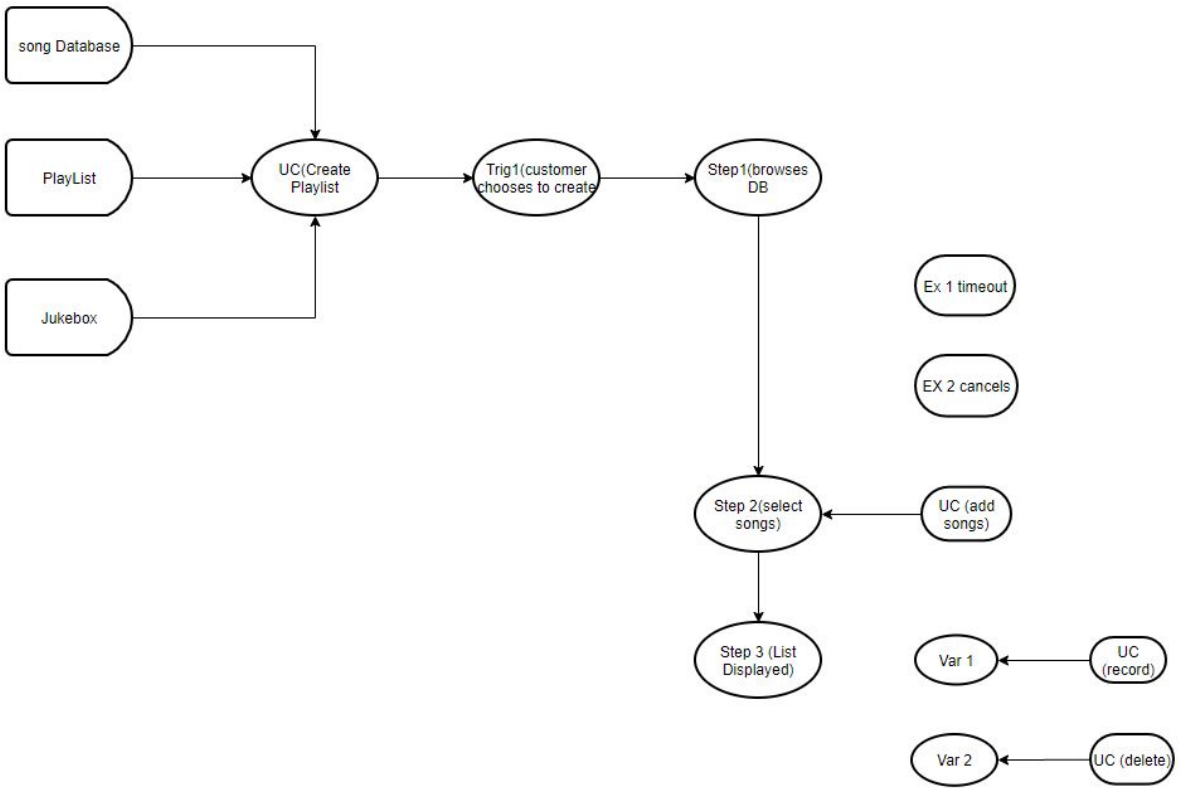
Course: CS522
Week: 02
Homework Link:
https://npu85.npu.edu/~henry/npu/classes/oo/uml_tutorial/slide/exercise_uml_tutorial.html
Q5 ==> Modified Use Case Diagram

Use case Diagram:



Program:
3 parts. Database, Song Playlist and Jukebox.

1. Song.java

```java
import java.io.File;
import java.io.FileInputStream;

//import javax.media.*;

import java.net.*;
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;

import javazoom.jl.player.Player;

public class Song {
   String name;
   String artist;
   String album;
   String url;
   String format;
   // Duration of Song in seconds
   int duration;
   public Song(){

   }
   public Song(String name, String artist, String album, String url,
         String format, int duration) {
      super();
      this.name = name;
      this.artist = artist;
      this.album = album;
      this.url = url;
      this.format = format;
      this.duration = duration;
   }

   public String getName() {
      return name;
   }

   public void setName(String name) {
      this.name = name;
   }

   public String getArtist() {
      return artist;
   }
```

```java
public void setArtist(String artist) {
   this.artist = artist;
}

public String getAlbum() {
   return album;
}

public void setAlbum(String album) {
   this.album = album;
}

public String getUrl() {
   return url;
}

public void setUrl(String url) {
   this.url = url;
}

public String getFormat() {
   return format;
}

public void setFormat(String format) {
   this.format = format;
}

public int getDuration() {
   return duration;
}

public void setDuration(int duration) {
   this.duration = duration;
}
public boolean isLong() {
   return duration>50;
}
```

```java
@Override
public String toString() {
    return "Name: " + this.getName() + "\t" +
           "Artist:" + this.getArtist() + "\t" +
           "Album:" + this.getAlbum() + "\t" +
           "Format:" + this.getFormat() + "\t" +
           "Duration:" + this.getDuration();
}

public void play(){
    try{
        FileInputStream fis = new FileInputStream(this.getUrl());
        Player playMP3 = new javazoom.jl.player.Player(fis);
        playMP3.play();
    }catch(Exception e){
         System.out.println(e);
     }
}
    //Driver
    public static void main(String[] args){
        System.out.println("Creating Song Object");
        Song song1=new Song("Kadhal Cricket", "Kharesma Ravichandran",
               "Thani Oruvan", "Cricket.mp3", "Mp3", 214);
        System.out.println("Playing Song");
        song1.play();

    }
```

2. Database.java

```java
import java.util.ArrayList;
import java.util.List;

public class Database {

private List<Song> songList;

    Database(){
        this.songList=new ArrayList<Song>();
    }
    Database(List<Song> songList){
        this.songList=songList;
    }

    public List<Song> getSongList() {
        return songList;
    }
    public Song getSongList(int index) {
        if(songList.size()>=index)
            return songList.get(index);
        else
            return null;
    }
    public void setSongList(List<Song> songList) {
        this.songList = songList;
    }

    public boolean isEmpty(){
        return this.songList.isEmpty();
    }
    public void addSong(Song song){
        songList.add(song);
    }
    public void removeSong(Song song){
        if(songList.contains(song)){
            songList.remove(song);
        }
    }
    public void removeSong(int index){
            songList.remove(index);
    }
    private void trace(String s){
        System.out.println(s);
    }
```

```java
public String toString(){
    System.out.println("Song List:\n==============");
    for(int i=0;i<songList.size();i++){
        trace(i+":\t"+songList.get(i).toString());
    }
    return "";
}

// Henry's comment
//   Database does not need to have the functionality of play.
public void play(int index){
    System.out.println("Playing Song : "+ songList.get(index).toString());
    songList.get(index).play();
}
public void play(){
    for(int index=0;index<songList.size();index++)
        play(index);
}
    //Driver
    public static void main(String[] args){
        Song song1=new Song("Kadhal Cricket", "Kharesma Ravichandran",
                "Thani Oruvan", "Cricket.mp3", "Mp3", 214);
        Song song2=new Song("Kannala Kannala", "Kaushik Krish",
                "Thani Oruvan", "Kannala.mp3", "Mp3", 215);
        Song song3=new Song("Kadhal Cricket", "Kharesma Ravichandran",
                "Thani Oruvan", "D://Cricket.mp3", "Mp3", 214);
        List<Song> tempSongList= new ArrayList<Song>();
        tempSongList.add(song2);
        tempSongList.add(song1);

        Database tempDB= new Database(tempSongList);
        tempDB.toString();
        System.out.println("\nAdding Song ");
        tempDB.addSong(song3);
        tempDB.toString();
        System.out.println("Playing Complete SongList");
        tempDB.play();

        System.out.println("Playing Song @ index 2");
        tempDB.play(2);
    }
```

3. Jukebox.java

```java
import java.util.ArrayList;
import java.util.List;

public class Jukebox {
    Database db;
    int creditCard;
    public Jukebox(){

    }
    public Jukebox(Database db, int creditCard) {
        super();
        this.db = db;
        this.creditCard = creditCard;
    }
    public Database getDb() {
        return db;
    }
    public void setDb(Database db) {
        this.db = db;
    }
    public int getCreditCard() {
        return creditCard;
    }
    public void setCreditCard(int creditCard) {
        this.creditCard = creditCard;
    }
    public boolean isValidCreditCard(){
        if(creditCard>0)
            return true;
        else
            return false;
    }
    void play(int i) {
            Song song=db.getSongList(i);
            song.play();
    }
    void play() {
        for (int index=0;index<db.getSongList().size();index++)
        {
            Song song=db.getSongList(index);
            trace("Currently Playing :"+song.getName());
            song.play();
        }
    }
    private void trace(String s){
        System.out.println(s);
    }
```

```java
//Driver
public static void main(String[] args){
    Song song1=new Song("Kadhal Cricket", "Kharesma Ravichandran",
            "Thani Oruvan", "Cricket.mp3", "Mp3", 214);
    Song song2=new Song("Kannala Kannala", "Kaushik Krish",
            "Thani Oruvan", "Kannala.mp3", "Mp3", 215);
    Song song3=new Song("Kadhal Cricket", "Kharesma Ravichandran",
            "Thani Oruvan", "D://Cricket.mp3", "Mp3", 214);
    List<Song> tempSongList= new ArrayList<Song>();
    tempSongList.add(song1);
    tempSongList.add(song2);
    tempSongList.add(song3);

    Database tempDB= new Database(tempSongList);
    Jukebox j= new Jukebox(tempDB, -123);

    //Validation of Credit Card
    System.out.println("Validity of CC : "+j.isValidCreditCard());
    j.getDb().toString();

    System.out.println("\nDeleting Song @ index 2");
    //Deleting Song @ index 2
    j.getDb().removeSong(2);
    j.getDb().toString();

    System.out.println("Playing the SongList");
    j.play();

    System.out.println("Playing Song @ index 2");
    j.play(2);
}
```