### **Question 1 [10 Points]**

Design the **MP3** and **Song** class such that the following outputs are produced.

*All attributes of Song class must be* ***private****.*

| **Driver Code** | **Output** |
| --- | --- |
| public class MusicTester {  public static void main(String[] args){  Song s1 = new Song("Blinding Lights", 4);  Song s2 = new Song("Counting Stars", 5);  Song s3 = new Song("Enemy", 7);  Song s4 = new Song("Nobody", 3);  Song s5 = new Song("Uptown Funk", 2);  System.out.println("1===========");  System.out.println("User Count: " + MP3.userCount);  System.out.println("2===========");  MP3.displayInfo();  System.out.println("3===========");  MP3 user1 = new MP3("Momo");  System.out.println("4===========");  MP3 user2 = new MP3("Ken");  System.out.println("5===========");  user2.addSong(s1);  System.out.println("6===========");  MP3.displayInfo();  System.out.println("7===========");  user1.addSong(s2);  user2.addSong(s3);  user1.addSong(s4);  user2.addSong(s5);  System.out.println("8===========");  MP3.displayInfo();  System.out.println("9===========");  System.out.println("User Count: " + MP3.userCount);  System.out.println("10===========");  MP3 user3 = new MP3("Aira");  System.out.println("11===========");  System.out.println("User Count: " + MP3.userCount);  }  } | 1===========  User Count: 0  2===========  MP3 Info:  Storage left: 15 MB  No songs in the playlist!  3===========  Momo(ID: 1) logged in!  4===========  Ken(ID: 2) logged in!  5===========  Blinding Lights added successfully!  6===========  MP3 Info:  Storage left: 11 MB  Songs in playlist:  1. Blinding Lights (4 MB) - Added by: Ken(ID: 2)  7===========  Counting Stars added successfully!  Not enough storage!  Nobody added successfully!  Cannot add more than 3 songs!  8===========  MP3 Info:  Storage left: 3 MB  Songs in playlist:  1. Blinding Lights (4 MB) - Added by: Ken(ID: 2)  2. Counting Stars (5 MB) - Added by: Momo(ID: 1)  3. Nobody (3 MB) - Added by: Momo(ID: 1)  9===========  User Count: 2  10===========  Aira(ID: 3) logged in!  11===========  User Count: 3 |

| class MP3 {  public static int userCount = 0;  public static int storage = 15;  public static Song[] songs = new Song[3];  public static int songCount = 0;  public String name;  public int id;  public MP3(String name){  this.name = name;  MP3.userCount++;  this.id = MP3.userCount;  System.out.println(name + "(ID: "+id+") logged in!");  }  public static void displayInfo(){  System.out.println("MP3 Info:\nStorage left: " + MP3.storage + " MB");  if(MP3.songCount == 0){  System.out.println("No songs in the playlist!");  }  else{  System.out.println("Songs in playlist:");  for (int i = 0; i < songCount; i++) {  String s1 = songs[i].getTitle() + " (" + songs[i].getSize() + " MB) - Added by: " + songs[i].getUser();  System.out.println((i+1) + ". " + s1);  }  }  }  public void addSong(Song s){  if(songCount >= 3){  System.out.println("Cannot add more than 3 songs!");  }  else if(storage < s.getSize()){  System.out.println("Not enough storage!");  }  else{  songs[songCount] = s;  storage -= s.getSize();  s.setUser(name + "(ID: " + id + ")");  songCount++;  System.out.println(s.getTitle() + " added successfully!");  }  }  }  class Song {  private String title;  private int size; // song duration in minutes  private String user;  public Song(String title, int size){  this.title = title;  this.size = size;  }  public int getSize(){  return size;  }  public String getTitle(){  return title;  }  public void setUser(String user){  this.user = user;  }  public String getUser(){  return user;  }  } |
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