ระบบจัดการ Playlist เพลง (ใช้ Linked List)

จัดทำโดย

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เสนอ
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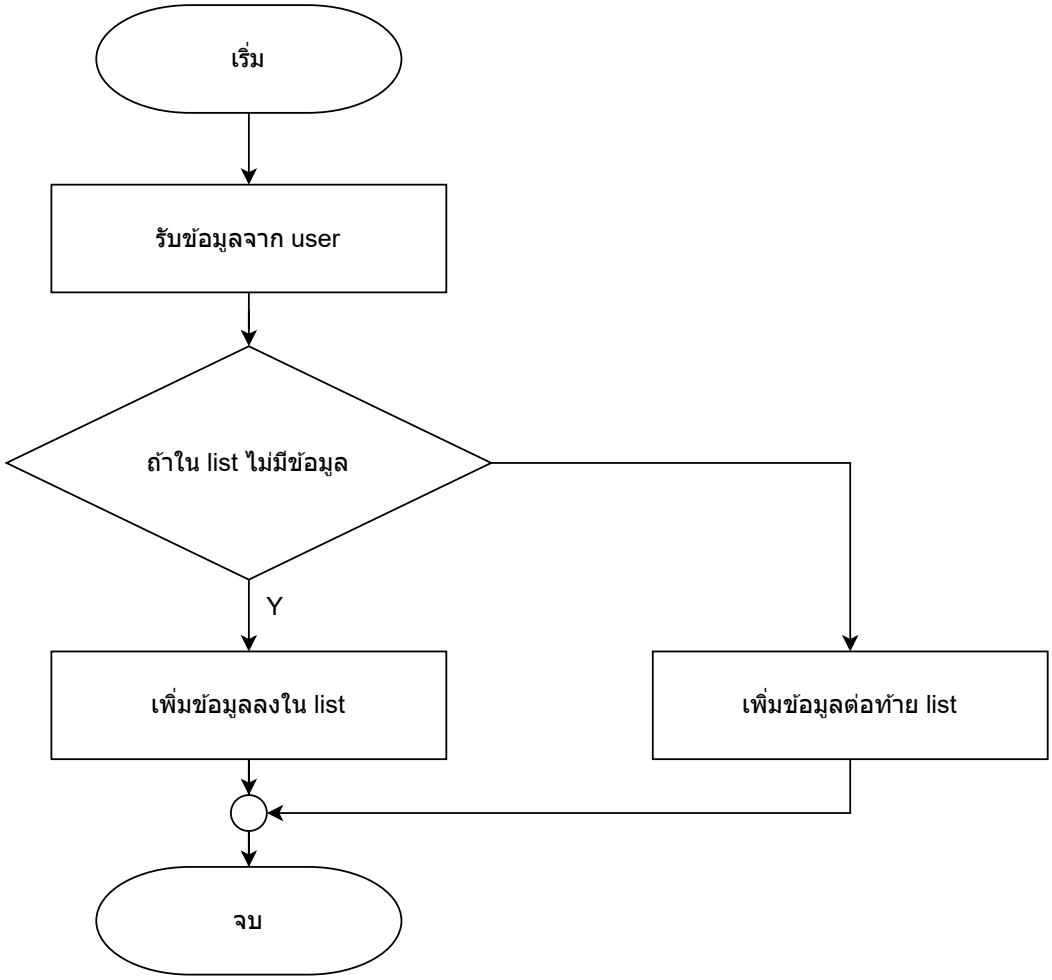
ใบงานนี้เป็นส่วนหนึ่งของวิชา

ENGCE124

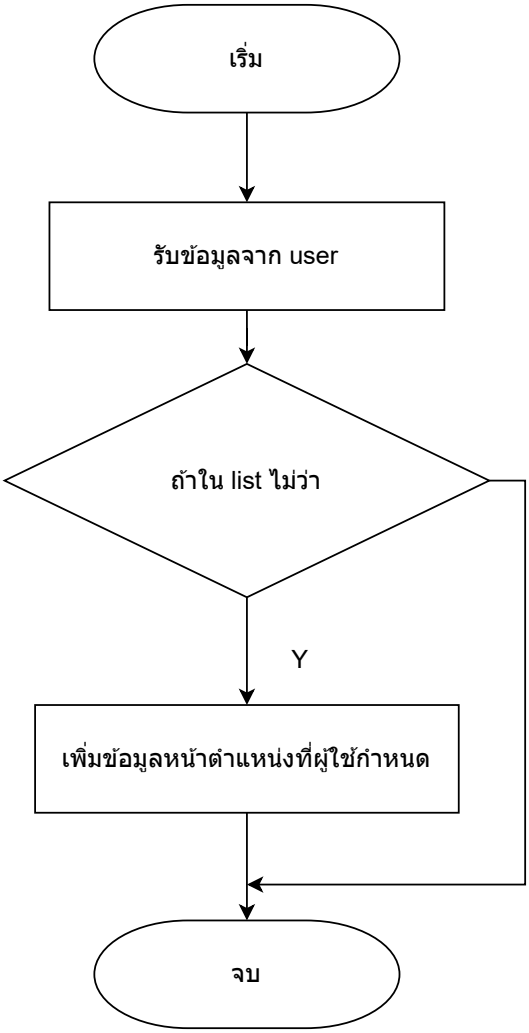
โครงสร้างข้อมูลและขั้นตอนวิธี
(Data Structures and Algorithms)
หลักสูตรวิศวกรรมศาสตร์บัณฑิต
สาขาวิชาวิศวกรรมไฟฟ้า (วิศวกรรมคอมพิวเตอร์)
คณะ วิศวกรรมศาสตร์
มหาวิทยาลัยเทคโนโลยีราชมงคลล้านนา เชียงใหม่
ภาคเรียนที่ 1 ปีการศึกษา 2568

Flowchat :

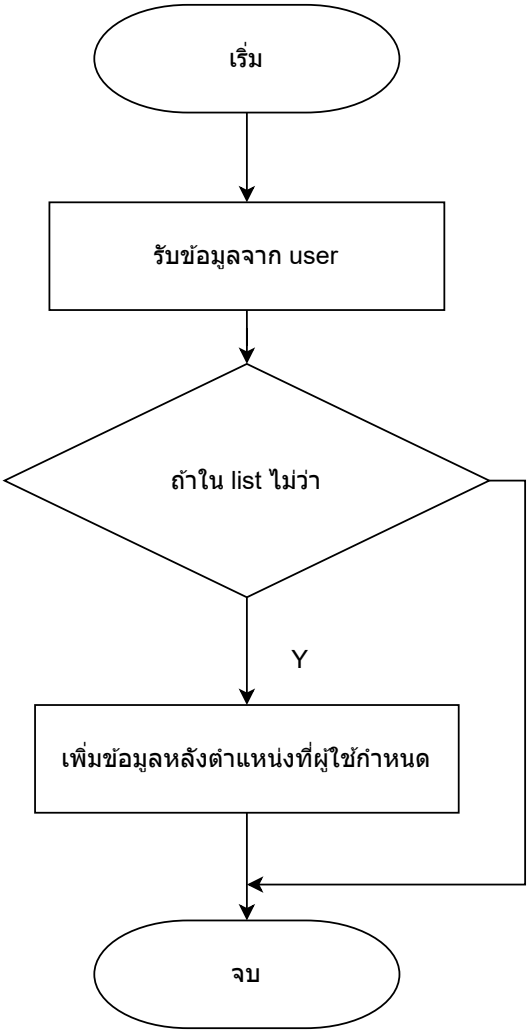
- **เพิ่มข้อมูลลงท้ายรายการ**



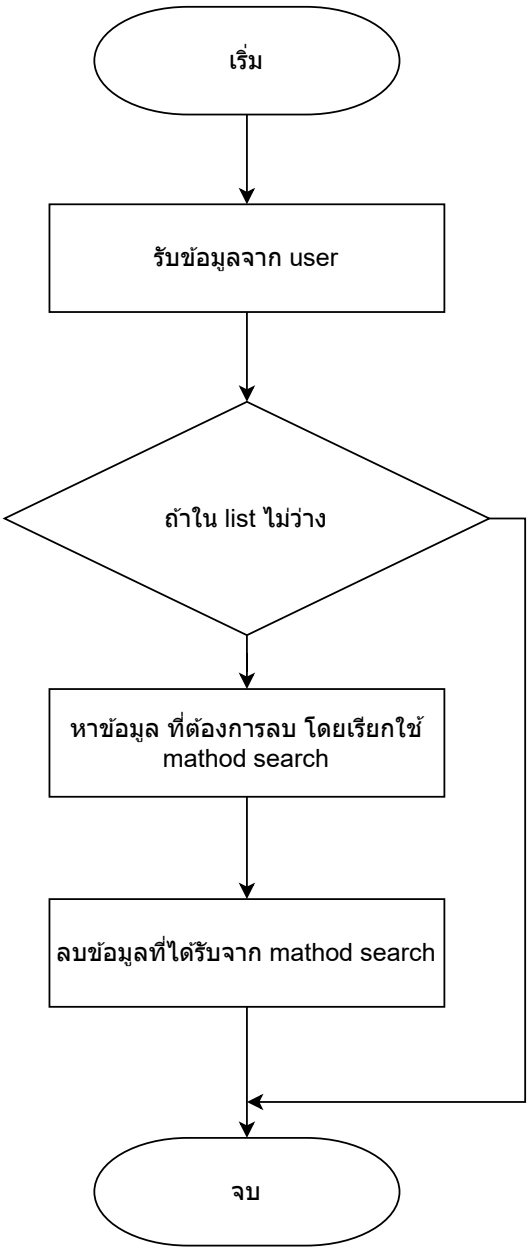
- **แทรกข้อมูลหน้า ข้อมูลที่กำหนด**



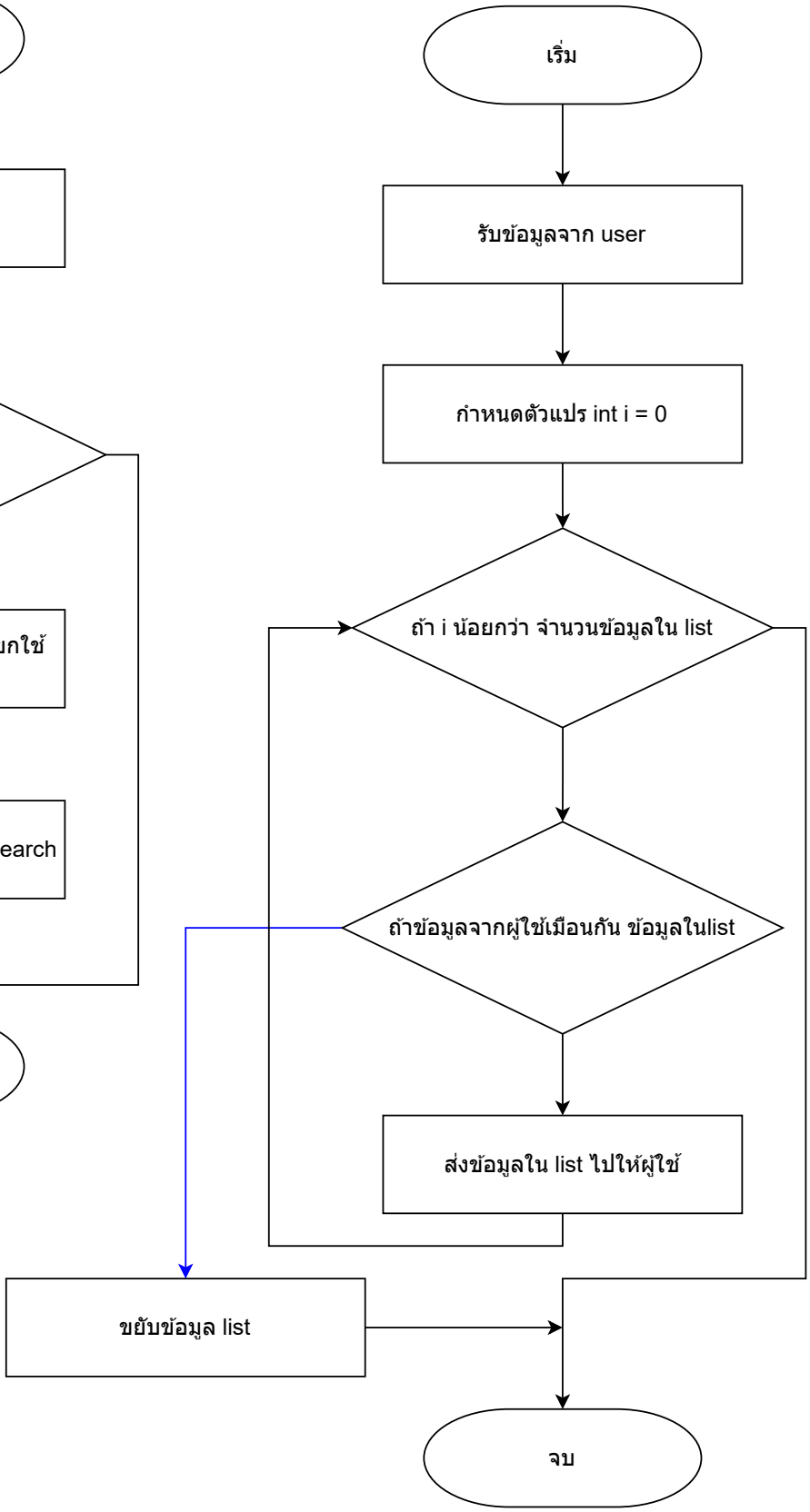
- **แทรกข้อมูลหลัง ข้อมูลที่กำหนด**



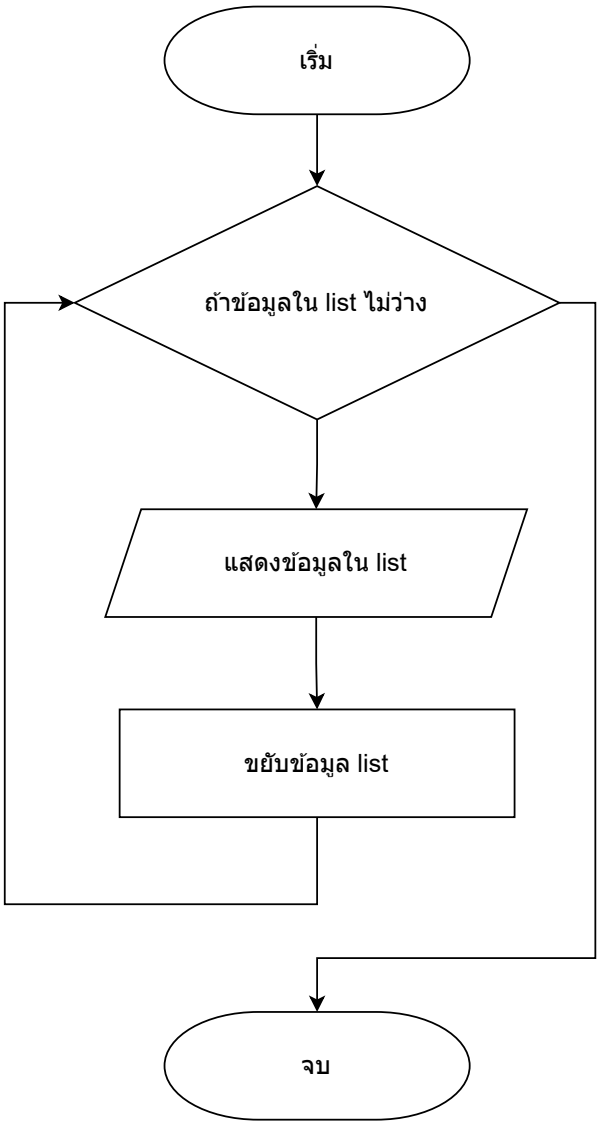
- ลบข้อมูลตามตำแหน่งที่กำหนด



- หาข้อมูล



- **แสดงข้อมูลทั้งหมดตามลำดับ**



Main :

```
public class Class_main {
public static void main(String[] args) {
SelectMode mode = new SelectMode() ;
mode.select() ;
}//end main
}//end class
```

Dnode :

```
public class DNode {
information info ;
DNode Llink,Rlink ;
}
```

Information :

```
public class information {
String name ;
String artist ;
String album ;
String length ;
public information( String name_music, String artist_name,
String album_name, String length_song ) {
name = name_music ;
artist = artist_name ;
album = album_name ;
length = length_song ;
```

```
}
}
Doubly linkedlist :
public class DLL {
DNode head, tail, chack;
int count = 0;
void add(information item) {
DNode newnode = new DNode();
newnode.info = item;
if (count == 0) {
head = newnode;
tail = newnode;
count++;
} else {
tail.Rlink = newnode;
newnode.Llink = tail;
tail = newnode;
count++;
} // end if
System.out.println( "Add succeed");
}// end add
void front_ins(information item, String ref) {
DNode pos = SearchData(ref);
DNode newnode = new DNode();
newnode.info = item;
```

```
if (pos != null) {
if (ref.equals(head.info.name)) {
newnode.Rlink = head;
head.Llink = newnode;
head = newnode;
count++;
} else {
newnode.Rlink = pos;
newnode.Llink = pos.Llink;
pos.Llink = newnode;
newnode.Llink.Rlink = newnode;
count++;
} // end if
System.out.println("insert succeed");
} else {
System.out.println("insert Failed") ;
return ;
} // end if
}// end mathod
void behind_ins(information item, String ref) {
DNode pos = SearchData(ref);
DNode newnode = new DNode();
newnode.info = item;
if (pos != null) {
if (ref.equals(tail.info.name)) {
```

```
/* behind head */
tail.Rlink = newnode;
newnode.Llink = tail;
tail = newnode;
count++;
} else {
newnode.Rlink = pos.Rlink;
newnode.Llink = pos;
pos.Rlink.Llink = newnode;
pos.Rlink = newnode;
count++;
} // end if
System.out.println("insert succeed");
} // end if
}// end mathod
void remove(String pos) {
// ลบหัว
DNode ref = SearchData(pos);
if (ref == null) {
System.out.println("Don't have data ! ");
return;
}
if (pos.equals(head.info.name)) {
// ลบหัว
if (count > 1) {
```

```
head = ref.Rlink;
head.Llink = null;
count--;
} else if (count == 1) {
head = null;
tail = null;
count--;
} // end if
} else if (pos.equals(tail.info.name)) {
// ลบท้าย
tail = ref.Llink;
tail.Rlink = null;
count--;
} else {
ref.Llink.Rlink = ref.Rlink;
ref.Rlink.Llink = ref.Llink;
ref.Rlink = null;
ref.Llink = null;
count--;
} // end if
System.out.println("Remove succeed");
}// end mathod
void show() {
chack = head;
int number = 0;
```

```
if (chack == null) {
System.out.println("Node don't have data");
return;
} // end if
System.out.println();
while (chack != null) {
number++;
System.out.println(number + ". Music name : " +
chack.info.name);
chack = chack.Rlink;
} // end loop
System.out.println();
}// end mathod
void showAll() {
chack = head;
int number = 0;
if (chack == null) {
System.out.println("Node don't have data");
return;
} // end if
System.out.println();
while (chack != null) {
number++;
System.out.println(
number + ". " +
```

```
"Name: " + chack.info.name + " | " +
"Artist: " + chack.info.artist + " | " +
"Album: " + chack.info.album + " | " +
"Length: " + chack.info.length
) ;
chack = chack.Rlink;
} // end loop
System.out.println();
}// end mathod
DNode SearchData(String ref) {
DNode node;
node = head;
if (node == null) {
return null;
} // end if
for (int i = 0; i < count; i++) {
if (ref.equals(node.info.name)) {
return node;
}
node = node.Rlink;
} // end for
return null;
} // end mathod

}// end class
```

SelectMode :

```
import java.util.Scanner;
public class SelectMode {
void select() {
DLL D = new DLL() ;
Scanner data = new Scanner(System.in) ;
String name = "" ;
String artist = "" ;
String album = "" ;
String length = "" ;
boolean end_pg = true ;
String mode ;
System.out.println();
while(end_pg){
System.out.println(
"\n1 : Add Music to Playlist\n" +
"2 : Insert Music Before Selected Song\n" +
"3 : Insert Music After Selected Song\n" +
"4 : Remove Music\n" +
"5 : Show Playlist\n" +
"6 : Exit Program\n"
);
System.out.println();
System.out.println("Select Mode: " ) ;
mode = data.nextLine().trim() ;
```

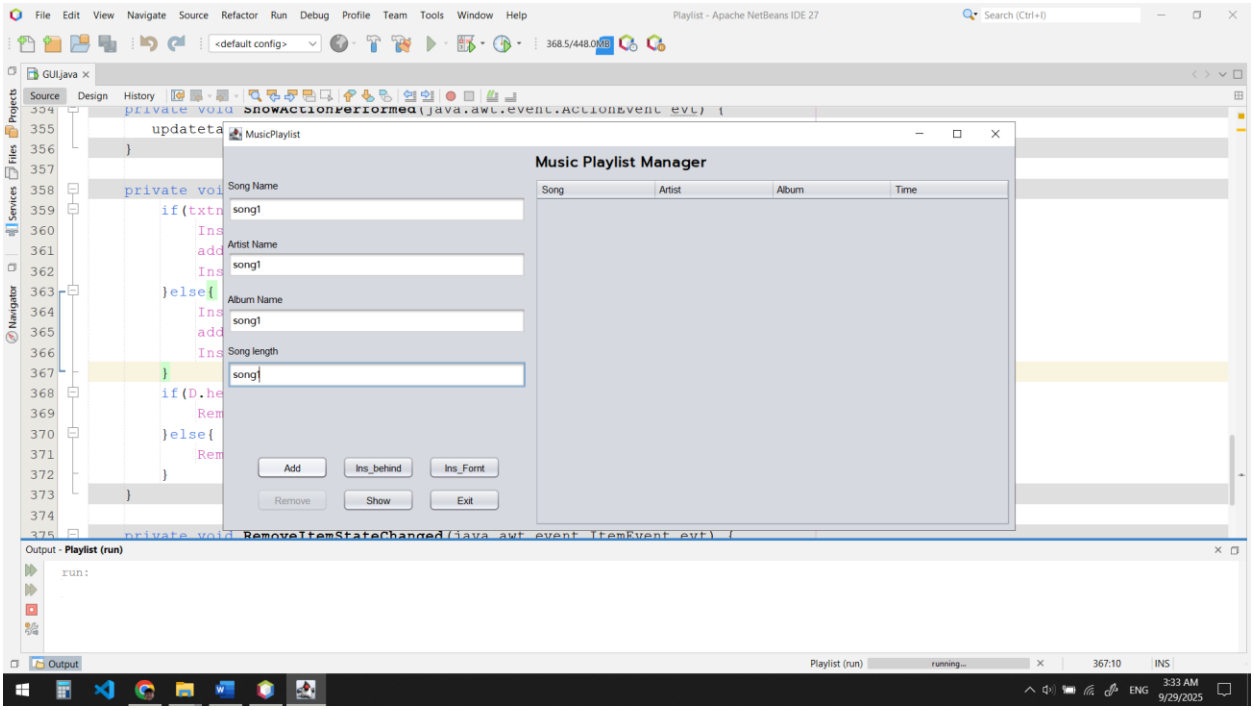
```
if( mode.equals( "1" ) ) {
System.out.print("What name song will u add ? : ") ;
name = data.nextLine().trim() ;
System.out.print("What artist name ? : ") ;
artist = data.nextLine().trim() ;
System.out.print("What album name ? : ") ;
album = data.nextLine().trim() ;
System.out.print("How long is this song ? : ") ;
length = data.nextLine().trim() ;
information info = new information(name, artist, album,
length ) ;
D.add(info) ;
} else if( mode.equals( "2" ) ){
System.out.print("What name song will u add ? : ") ;
name = data.nextLine().trim() ;
System.out.print("What artist name ? : ") ;
artist = data.nextLine().trim() ;
System.out.print("What album name ? : ") ;
album = data.nextLine().trim() ;
System.out.print("How long is this song ? : ") ;
length = data.nextLine().trim() ;
information info = new information(name, artist, album,
length ) ;
String pos ;
D.show() ;
System.out.print("Insert song where ? : ") ;
```

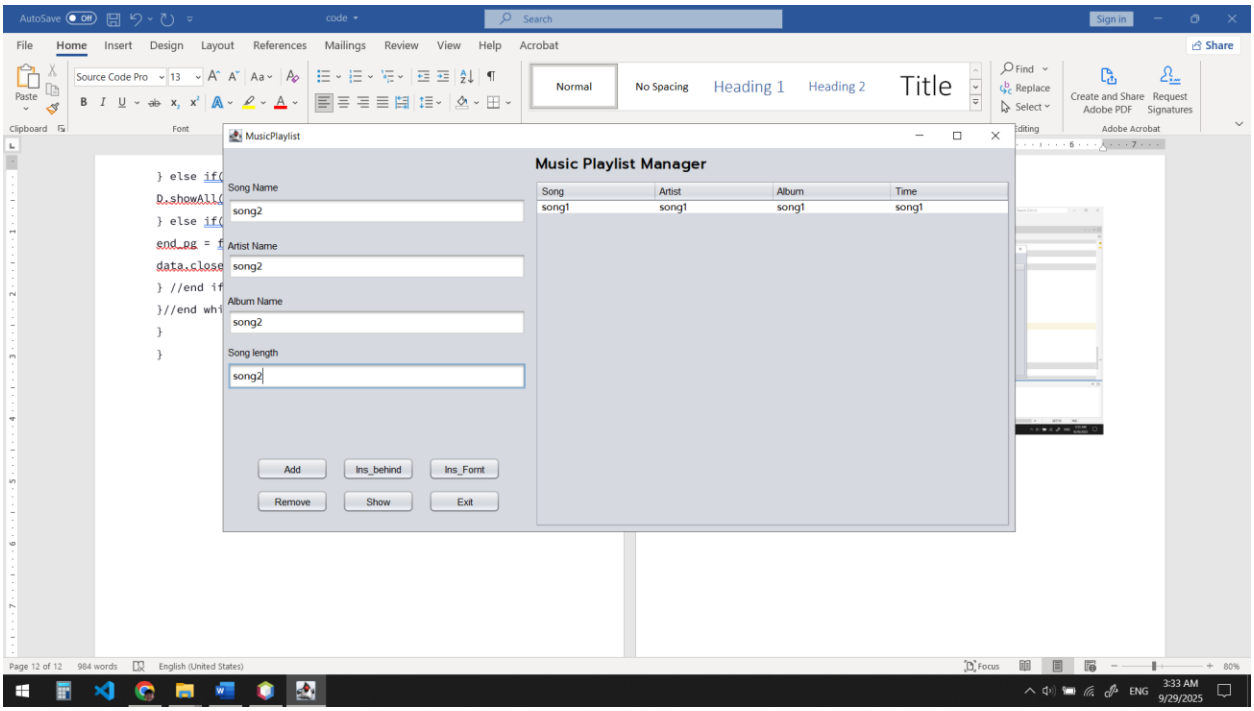
```
pos = data.nextLine().trim() ;
D.front_ins( info, pos ) ;
} else if( mode.equals( "3" ) ){
System.out.print("What name song will u add ? : ") ;
name = data.nextLine().trim() ;
System.out.print("What artist name ? : ") ;
artist = data.nextLine().trim() ;
System.out.print("What album name ? : ") ;
album = data.nextLine().trim() ;
System.out.print("How long is this song ? : ") ;
length = data.nextLine().trim() ;
information info = new information(name, artist, album,
length ) ;
String pos ;
D.show() ;
System.out.print("Insert song where ? : ") ;
pos = data.nextLine().trim() ;
D.behind_ins( info, pos ) ;
} else if( mode.equals( "4" ) ){
String pos ;
D.show( ) ;
System.out.print( "What music would you like to remove ? :
") ;
pos = data.nextLine( ).trim() ;
D.remove(pos) ;
D.show( ) ;
```

```
} else if( mode.equals("5") ){
D.showAll() ;
} else if( mode.equals("6") ) {
end_pg = false ;
data.close() ;
} //end if
}//end while
}
}
```

Testcase :

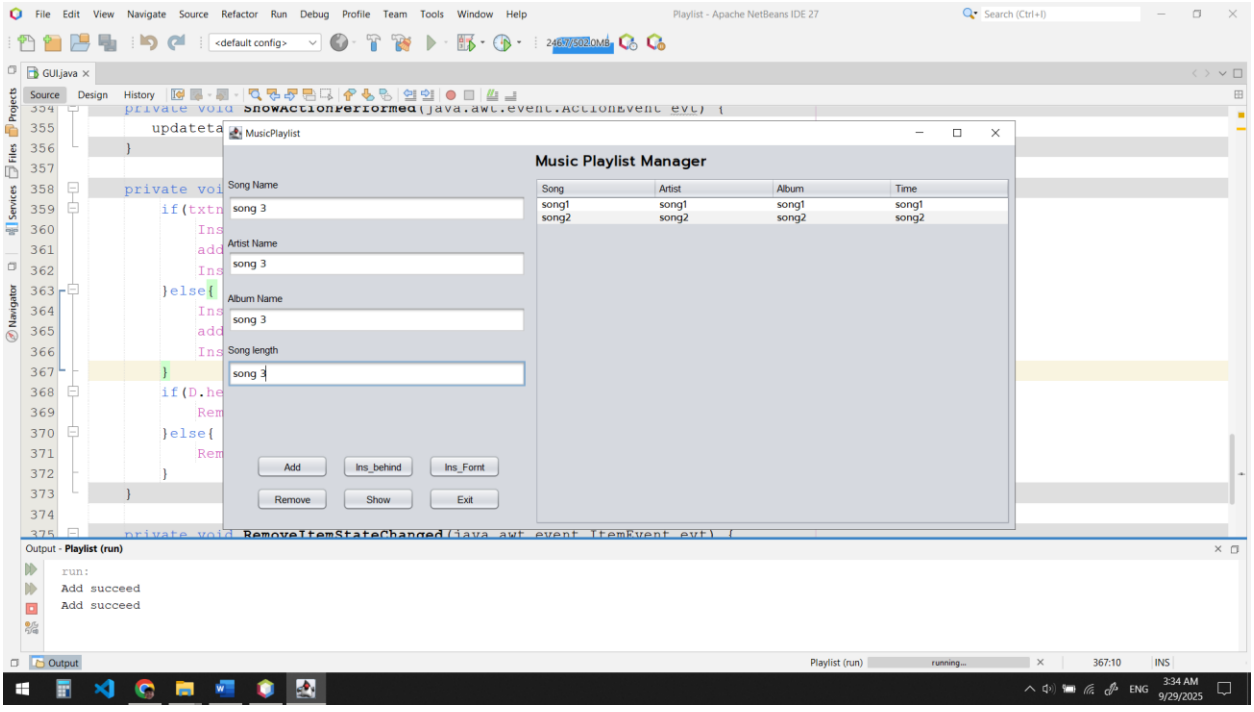
Add :

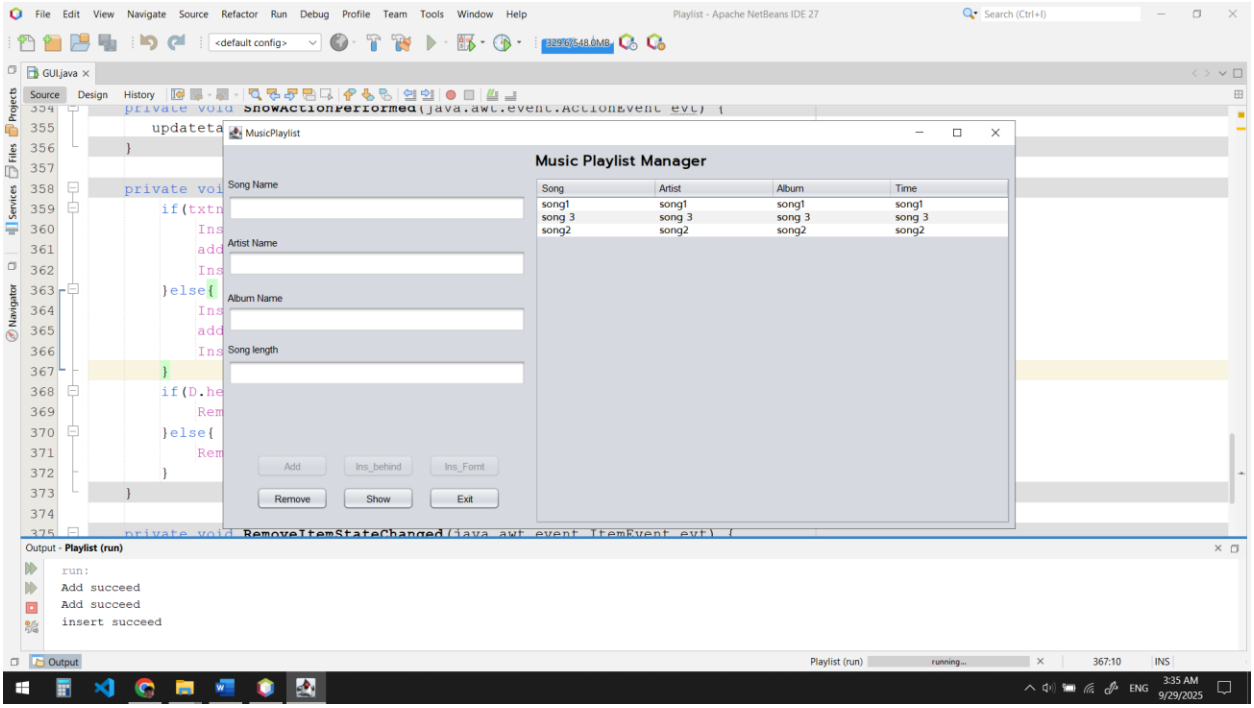




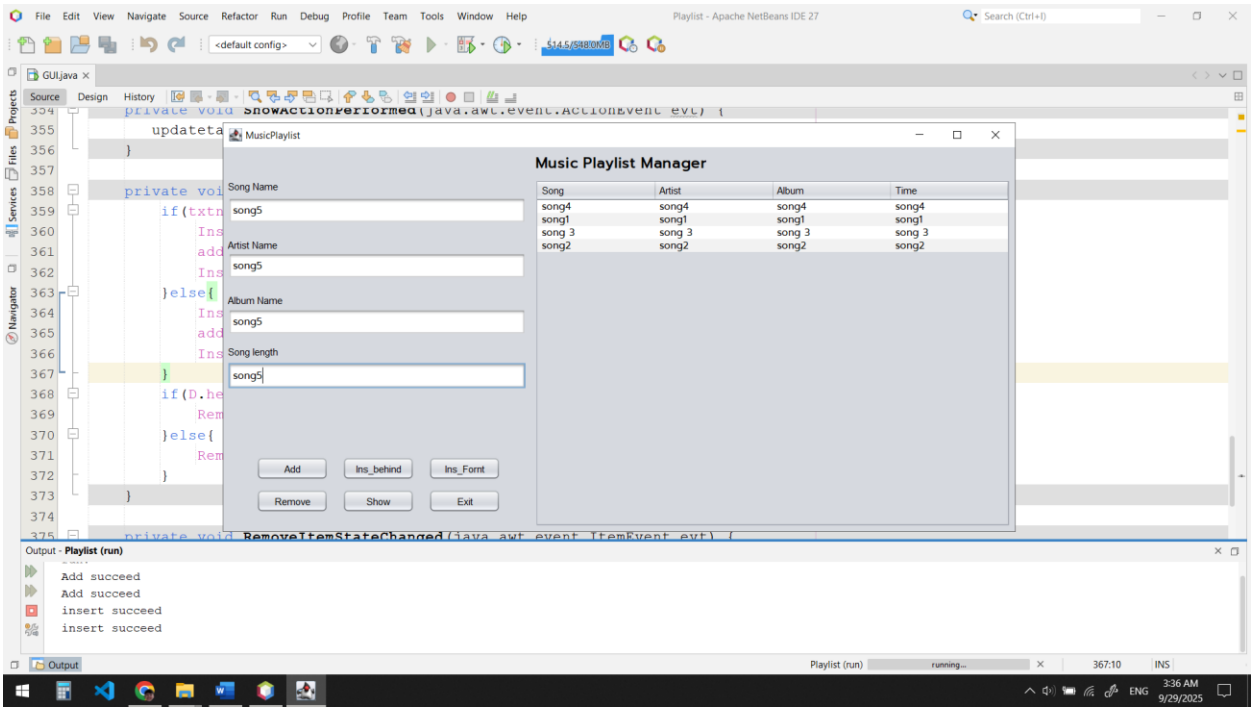
Insert front:

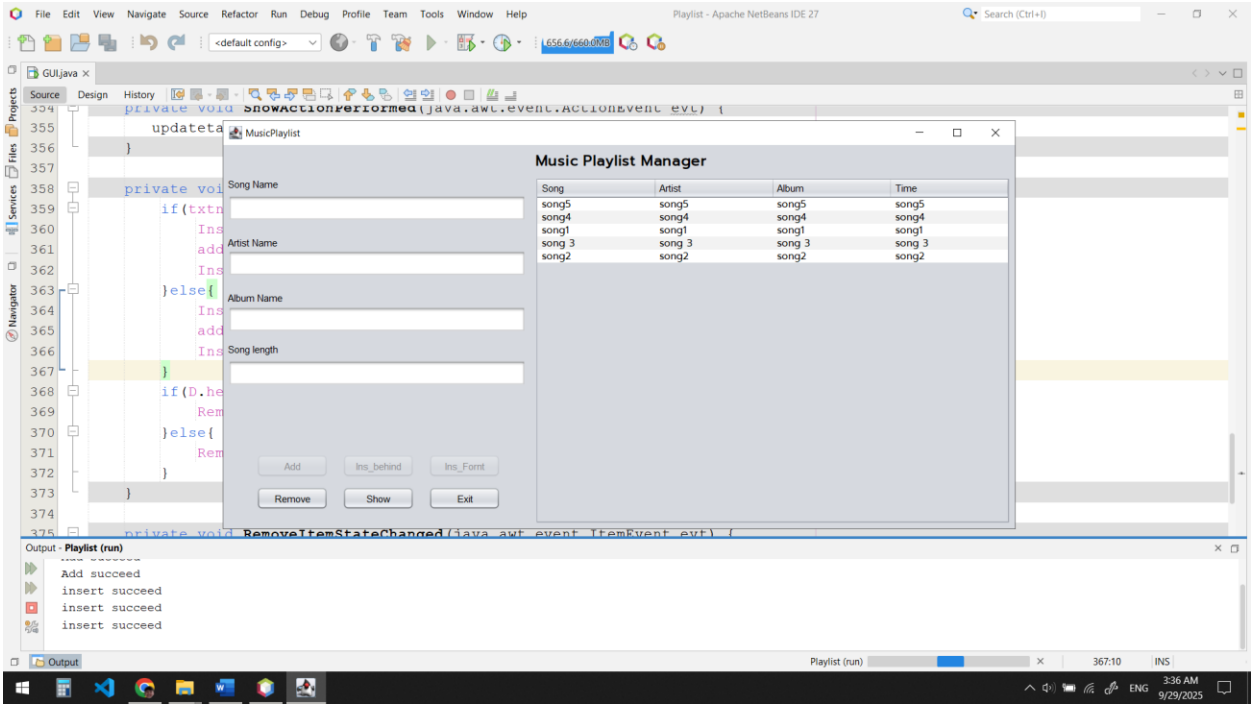
1: insert front tail





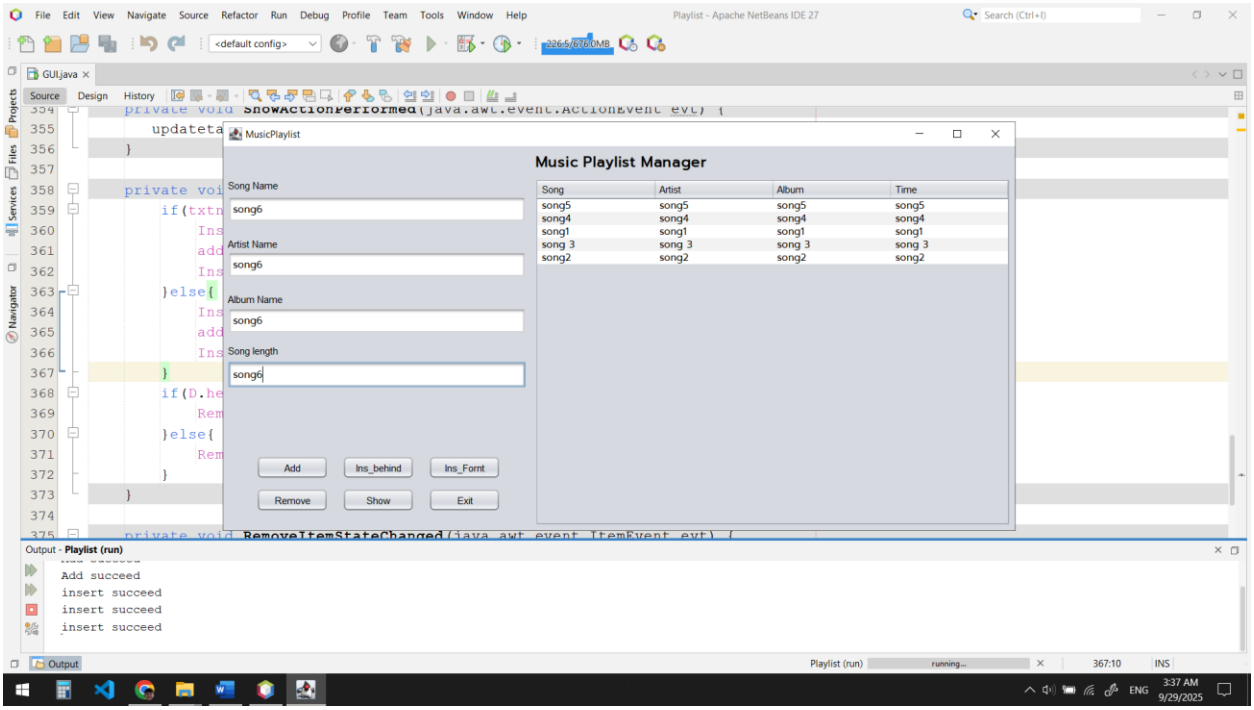
2: insert front head

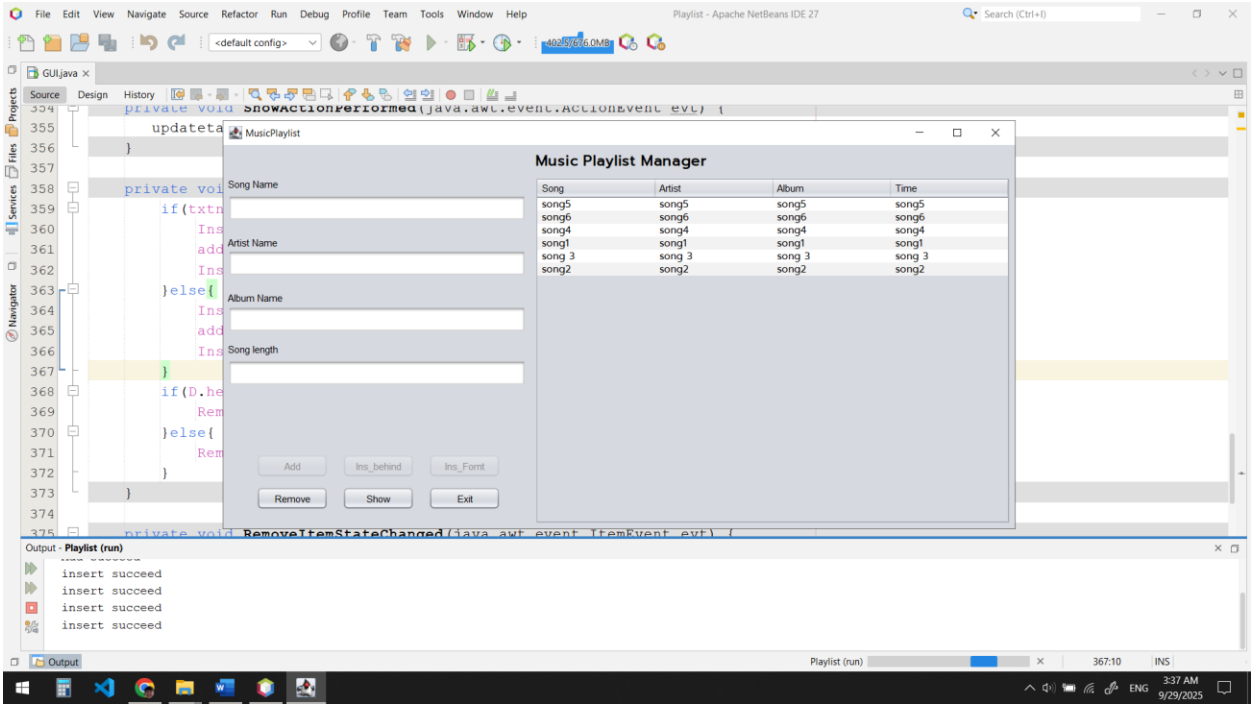




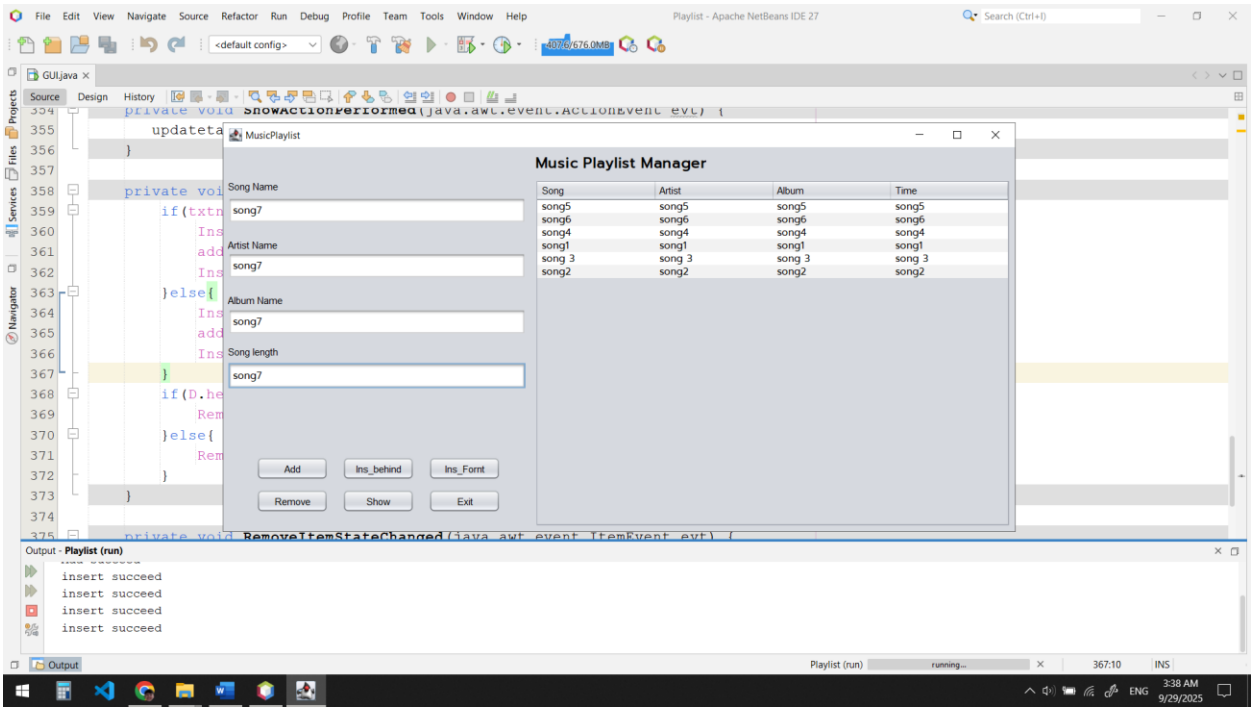
Insert behind :

1: insert behind head





2: Add behind tai



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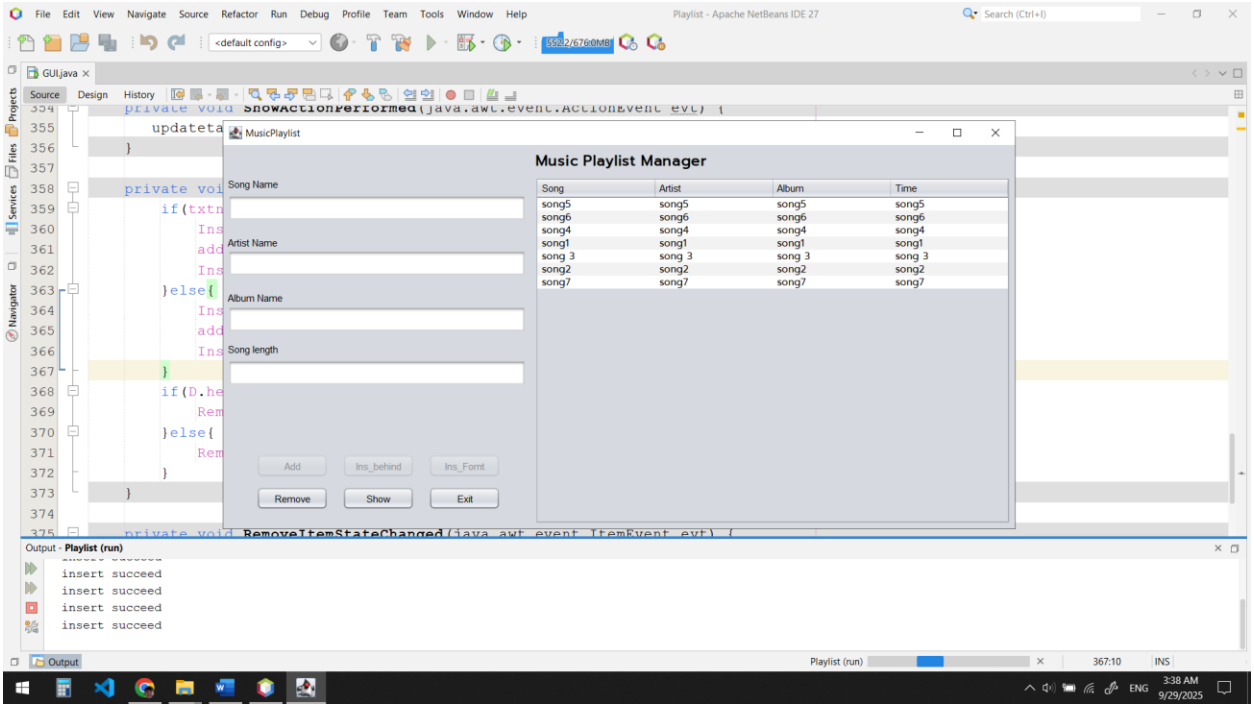
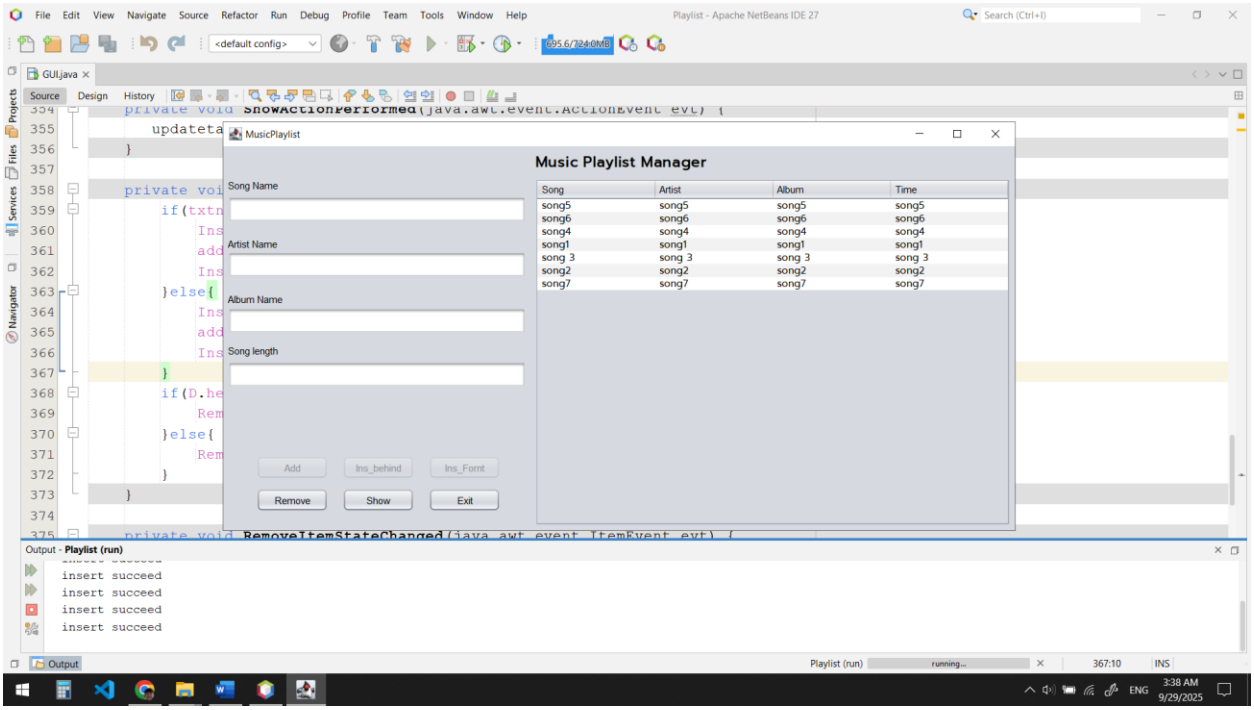
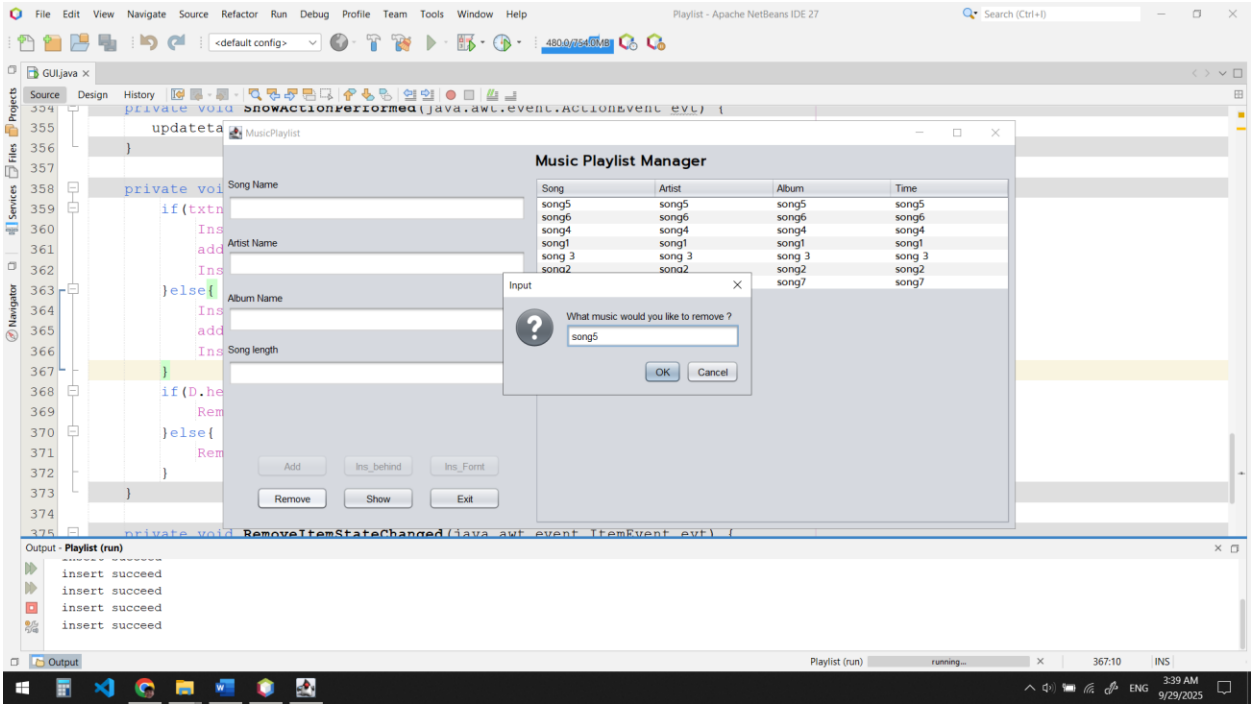
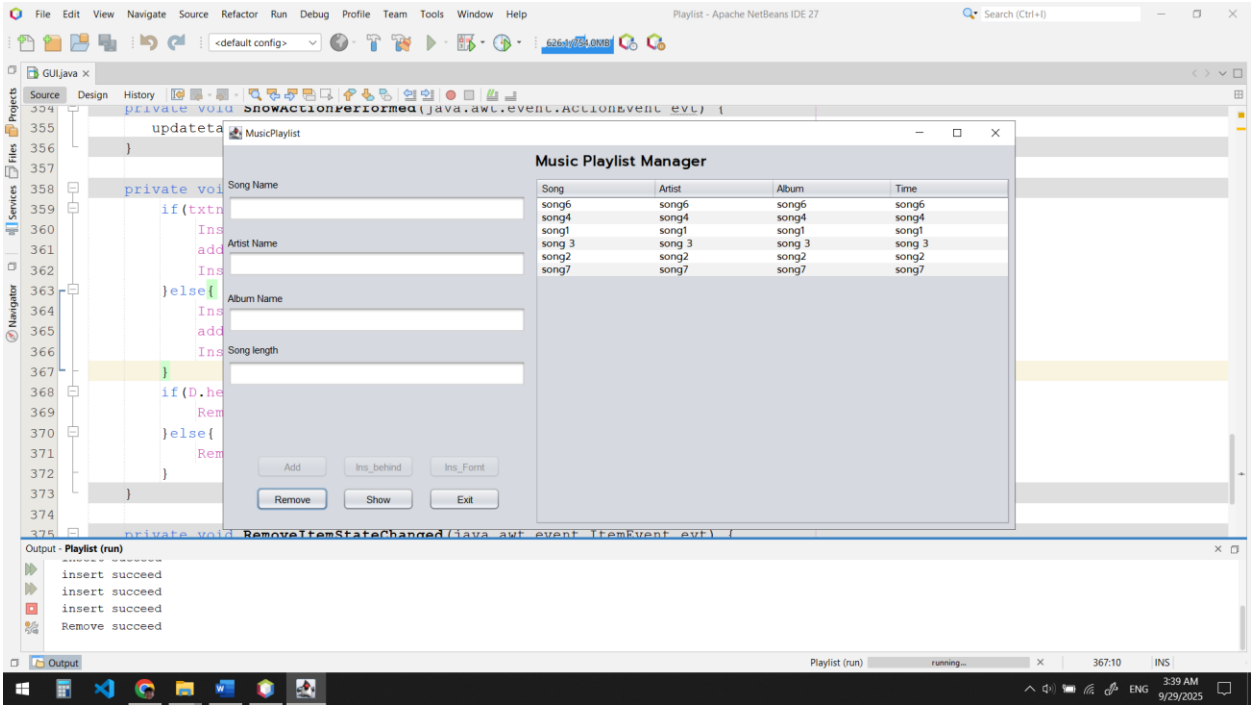

MusicPlaylist
Music Playlist Manager
Song Name
Artist Name
Album Name
Song length
Add
Ins_behind
Ins_Fornt
Remove
Show
Exit
Song
Artist
Album
Time
song5
song6
song4
song1
song 3
song2
song7
Output - Playlist (run)
insert succeed
insert succeed
insert succeed
insert succeed

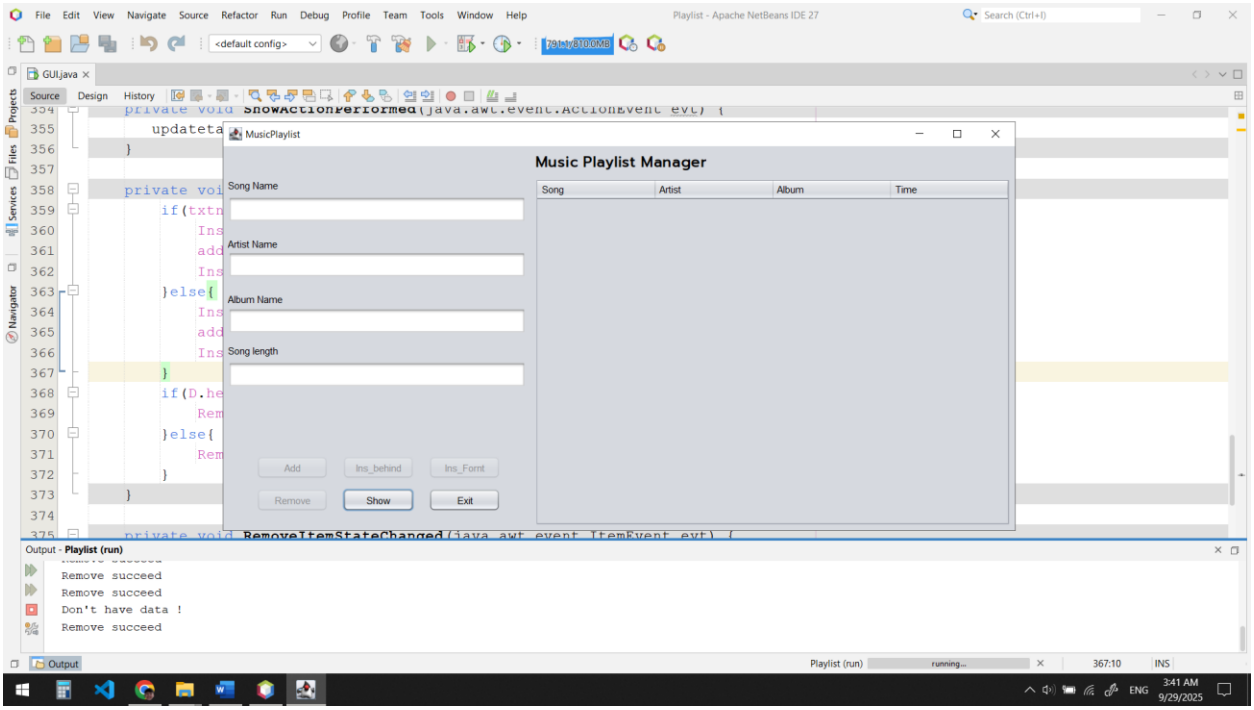
Remove:


MusicPlaylist
Music Playlist Manager
Song Name
Artist Name
Album Name
Song length
Add
Ins_behind
Ins_Fornt
Remove
Show
Exit
Song
Artist
Album
Time
song5
song6
song4
song1
song 3
song2
song7
Output - Playlist (run)
insert succeed
insert succeed
insert succeed
insert succeed


MusicPlaylist
Music Playlist Manager
Song Name
Artist Name
Album Name
Song length
Song
Artist
Album
Time
song5 song5 song5 song5
song6 song6 song6 song6
song4 song4 song4 song4
song1 song1 song1 song1
song 3 song 3 song 3 song 3
song2 song2 song2 song2
song7 song7 song7 song7
Input
What music would you like to remove ?
song5
OK
Cancel
Add
Ins_behind
Ins_Fornt
Remove
Show
Exit
Output - Playlist (run)
insert succeed
insert succeed
insert succeed
insert succeed
Playlist (run)
running...
367:10
INS
ENG
3:39 AM
9/29/2025

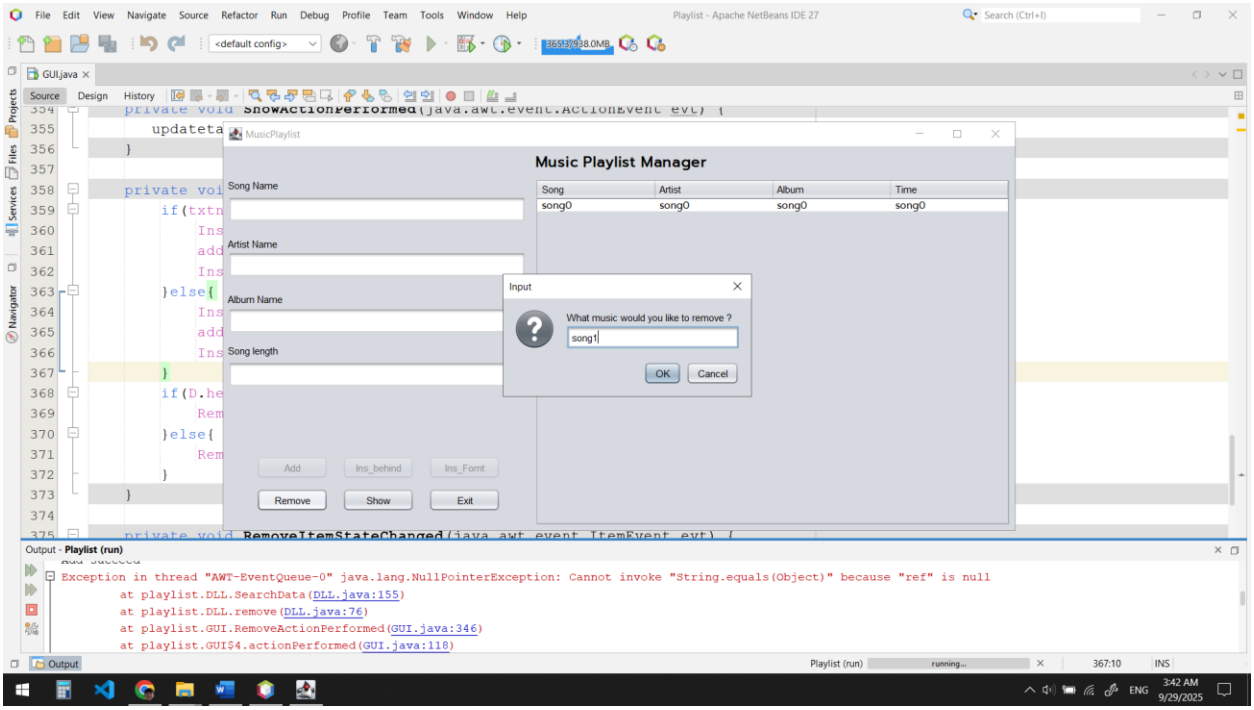

MusicPlaylist
Music Playlist Manager
Song Name
Artist Name
Album Name
Song length
Song
Artist
Album
Time
song6 song6 song6 song6
song4 song4 song4 song4
song1 song1 song1 song1
song 3 song 3 song 3 song 3
song2 song2 song2 song2
song7 song7 song7 song7
Add
Ins_behind
Ins_Fornt
Remove
Show
Exit
Output - Playlist (run)
insert succeed
insert succeed
insert succeed
Remove succeed
Playlist (run)
running...
367:10
INS
ENG
3:39 AM
9/29/2025

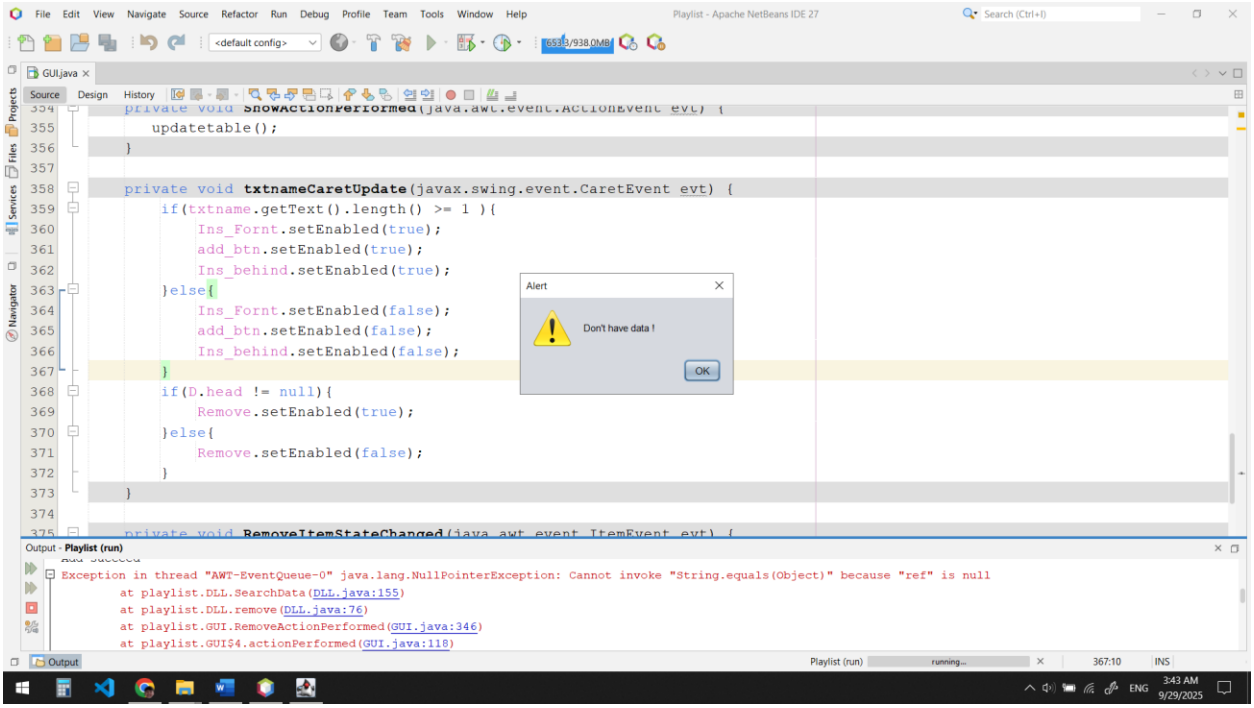
Don’t have data to remave :



*จะกดปุ่ม remove ไม่ได้ถ้าไม่มีข้องมูลใน list *

2: Can't find information




File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Playlist - Apache NetBeans IDE 27
Search (Ctrl+I)
<default config>
GUI.java
Source Design History
updatetable();
}
private void txtnameCaretUpdate(javax.swing.event.CaretEvent evt) {
if(txtname.getText().length() >= 1){
Ins_Fornt.setEnabled(true);
add_btn.setEnabled(true);
Ins_behind.setEnabled(true);
}else{
Ins_Fornt.setEnabled(false);
add_btn.setEnabled(false);
Ins_behind.setEnabled(false);
}
if(D.head != null){
Remove.setEnabled(true);
}else{
Remove.setEnabled(false);
}
}
Alert
Don't have data !
OK
Output - Playlist (run)
Exception in thread "AWT-EventQueue-0" java.lang.NullPointerException: Cannot invoke "String.equals(Object)" because "ref" is null
at playlist.DLL.SearchData(DLL.java:155)
at playlist.DLL.remove(DLL.java:76)
at playlist.GUI.RemoveActionPerformed(GUI.java:346)
at playlist.GUI$4.actionPerformed(GUI.java:118)
Playlist (run) running...
367:10
INS
ENG
3:43 AM
9/29/2025