

List of Lists (Nested List)

Aim: How can we make a playlist app using sublists?

Learning Objectives/SWBAT:

- Store and access data in a list of lists
- Explain the importance of using sublists to store data

NYS Standards:

- **9-12.CT.7:** Design or remix a program that utilizes a data structure to maintain changes to related pieces of data.
 - **Clarifying Statement:** The focus is on updating the elements or components within a named instance of a data structure, without changing the value associated with the name itself.

Materials:

- Instructional slide deck: https://docs.google.com/presentation/d/1-rTfLL9RLwMdvO9UOhDXN66aLjsCk8J5sAugH_ILzOQ/edit?usp=sharing
- Program solutions: <https://snap.berkeley.edu/snap/snap.html#present:Username=mswongbths&ProjectName=Playlist%20App>

Agenda	Notes/Anticipated Student Responses																																				
Warm Up (5 mins) Name your 5 favorite songs and for each find information about the following: <ul style="list-style-type: none">• Song name• Artist• Album• Year Released• Genre	For example, a student may write “Irreplaceable, Beyonce, B’Day, 2006, Pop,” etc.																																				
Mini Lesson (7 mins) Ask students to organize all the information in a way that makes sense so that the information is easily usable or easily understandable at first glance. Students should share with their neighbor what they came up with. Students may come up with a table of information, like:																																					
<table><tr><th>#</th><th>Song Name</th><th>Artist</th><th>Album</th><th>Year Released</th><th>Genre</th></tr><tr><td>1</td><td>Irreplaceable</td><td>Beyonce</td><td>B’Day</td><td>2006</td><td>Pop</td></tr><tr><td>2</td><td>Party in the USA</td><td>Miley Cyrus</td><td>Pop It Rock It 2: It’s On</td><td>2009</td><td>Pop</td></tr><tr><td>3</td><td>Empire State of Mind</td><td>Jay-Z</td><td>The Blueprint 3</td><td>2009</td><td>Hip Hop</td></tr><tr><td>4</td><td>Cold</td><td>Chris Stapleton</td><td>Starting Over</td><td>2020</td><td>Country</td></tr><tr><td>5</td><td>Trip</td><td>Ella Mai</td><td>Ella Mai</td><td>2018</td><td>R&B</td></tr></table>		#	Song Name	Artist	Album	Year Released	Genre	1	Irreplaceable	Beyonce	B’Day	2006	Pop	2	Party in the USA	Miley Cyrus	Pop It Rock It 2: It’s On	2009	Pop	3	Empire State of Mind	Jay-Z	The Blueprint 3	2009	Hip Hop	4	Cold	Chris Stapleton	Starting Over	2020	Country	5	Trip	Ella Mai	Ella Mai	2018	R&B
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Elicit that a list of lists, or nested lists, are a natural and helpful way to organize information. Ask students other examples of information that can be represented in this way, as a list of lists (i.e. contact list, shopping list, TV/movie recommendations, etc.).

Demo code for students.

Activity (25 mins)

Students will build a playlist app that will:

- ask the user for data to be inputted into a list and store the data inputted as a list of lists
- ask the user if they want to clear the whole list and clear it
- ask the user which song they would like information for, access the list, and display to the user all songs with that information
- ask the user which song they would like to remove from the list and remove that song

If there is time:

- ask the user which artist, genre, etc. they would like information for, access the list, and display to the user all songs with that information
- ask the user which song they would like to delete from the playlist

In a new *Snap!* Project, **create a program** that will have the following:

- A reporter, “**playlist item**,” that organizes, assembles, and reports the following as a list:
 - *Song name*
 - *Artist*
 - *Album name*
 - *Year released*
 - *Genre*
- A reporter that selects each piece of the playlist item.
 - For example, “**title of song**” that selects and reports ONLY the song title from **playlist item**; “**artist**,” that selects and reports ONLY the song title from **playlist item**.
- A playlist, named “**(Your Name)’s Playlist**,” that holds at least 5 **playlist items** of your choice.

Students can use the following starter code if they want:

<https://snap.berkeley.edu/snap/snap.html#present:Username=mswongbths&ProjectName=Playlist%20App%20Starter%20Project>

Exit Ticket (3 mins)

Name one accomplishment or one thing you learned, and one question you have or clarification you need about your program. Exchange your responses with a neighbor. Provide feedback on each other’s responses.

Starter Code for group presentations:

<https://snap.berkeley.edu/snap/snap.html#present:Username=mswongbths&ProjectName=Playlist%20App%20Starter%20Code>