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Lesson 2: Organise your beats

Create collections using
lists

Learning objectives



Understand there are many layers to injustice.



Understand that data structures like lists can be used to store a collection of data items.



Know how to create a list to store items.



Make use of indexes to select items from lists.



Be able to code selection (if) statements to create different pathways through a program

How are music and computer science pathways to promote social justice?



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Layers of injustice



[Verse 1 Audio](#)



- Knowledge of layers of racism, music and code will be instrumental in the message of your music that you will create in EarSketch.
- Listen to Verse 1, can you identify which layers of OUTKAST link with each of these lyrics:

In this position with no choice
A system imprison young black boys

Distract with white noise
The brainwashed become hype boys

Third eye dilate
You wasn't suppose to make it off Section Eight

Robbin' Peter just to pay Paul
Prepare to risk everything



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| |
|----------------------|
| Open Minded Thinking |
| Uprightness |
| Truth, Transparency |
| Kinship |
| Accountability |
| Sequence |
| Teach Love |

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Layers of injustice- answers



[Verse 1 Audio](#)



ORIGINAL LYRICS

 [Audio Verse 1](#)

In this position with no choice

A system imprison young black boys

Distract with white noise

The brainwashed become hype boys

Third eye dilate

You wasn't supposed to make it off
Section Eight

Robbin' Peter just to pay Paul

Prepare to risk everything

OUTKAST IMAGINATION

Truthtelling

Calling out white supremacy — “Distract with white noise,” “In this position with no choice”

Accountability

Mass Incarceration, Poverty, Lack of Education Systems, Institutional Racism — “A system imprison young black boys”
Lack of Accountability — “The brainwashed become hype boys”

Uprightness

Resilience, Knowledge of Self, and Doing the Right thing — “Third eye dilate”

Kinship

Your risking everything to take care of your family — “You wasn't supposed to make it off Section Eight”



Using lists to store beats

- We can store a collection of beat objects by holding them inside a list
- Lists are dynamic data structures which means we can insert new items, delete items we don't want from anywhere inside the list
- Each item in the list has an index which starts from zero.

| |
|-------|
| drum1 |
| vox1 |
| kick1 |

Image like that below but
change to

```
beats = ["drum1", "vox1",  
         "kick1"]  
letters = ["d", "v", "c"]  
          0  1  2
```

Recap using the fitMedia function



Last lesson you made us of the fitMedia function to play a drum beat or similar:

```
# description:
```

```
from earsketch import *
```

```
pharrell_drum = ENTREP_BEAT_DRUMBEAT
```

```
my_tempo = int(input("Enter tempo (120  
standard))) setTempo(my_tempo)
```

```
fitMedia(pharrell_drum, 1, 1, 8)
```

Activity (pairs)

Partner A: Can you explain and summarise this code in just two or three sentences to your partner?

Partner B: Can you explain each line of code, one after the other in your own words to your partner?

Load the jukebox



- Create some more beat objects like you did with your selected drum beat:

```
ciara_drum = CIARA_SET_DRUMBEAT_1
```

```
pharrell_drum = ENTREP_BEAT_DRUMBEAT
```

```
khalid_drum = KHALID_NORM_DRUMBEAT
```

```
alicia_drum = AK_UNDOG_STEEL_DRUMS
```

- Place the objects into a list using your object names

```
drum_list = [ciara_drum, pharell_drum, khalid_drum, alicia_drum]
```

Activity

Create your own list of beats for an instrument of your choice.

Don't forget you can use the filters to filter all beats by a particular instrument such as drums.

Pick a beat from the box

```
ciara_drum = CIARA_SET_DRUMBEAT_1  
pharrell_drum = ENTREP_BEAT_DRUMBEAT  
khalid_drum = KHALID_NORM_DRUMBEAT  
alicia_drum = AK_UNDOG_STEEL_DRUMS
```

```
fitMedia(pharrell_drum, 1, 1, 8)
```



Activity (pairs)

Can you describe how we can play an item from our newly created list?

What parameter do we need to change?

What do we need to change the parameter to?

Pick a beat from the box



- By including the index of the list, we can select to play ciara_drum using this code:

```
ciara_drum = CIARA_SET_DRUMBEAT_1  
pharrell_drum = ENTREP_BEAT_DRUMBEAT  
khalid_drum = KHALID_NORM_DRUMBEAT  
alicia_drum = AK_UNDOG_STEEL_DRUMS
```

```
fitMedia(pharrell_drum, 1, 1, 8)
```

```
drum_list = [ciara_drum, pharrell_drum, khalid_drum, alicia_drum]
```

```
fitMedia(drum_list[0], 1, 1, 8)
```

Activity (pairs)

What would be played with each of these commands?

Pick a beat from the box



- Previously the beat was played by naming the object as one of the parameters:

```
ciara_drum = CIARA_SET_DRUMBEAT_1
```

```
pharrell_drum = ENTREP_BEAT_DRUMBEAT
```

```
khalid_drum = KHALID_NORM_DRUMBEAT
```

```
alicia_drum = AK_UNDOG_STEEL_DRUMS
```

```
drum_list = [ciara_drum, pharrell_drum, khalid_drum, alicia_drum]
```

```
fitMedia(drum_list[1], 1, 1, 8)
```

```
fitMedia(drum_list[0], 1, 1, 8)
```

```
fitMedia(drum_list[4], 1, 1, 8)
```

```
fitMedia(drum_list[3], 1, 1, 8)
```

Select your sounds and organise a list



- Use your knowledge of variables and lists to create your own collection of sounds
- Use the fitMedia() command to play items from your list
- You could create a list with many samples in and select which you want to play by changing the list index to create your best sound.

Activity

Using the music filters, select a drum, bass, vocals samples as well as another of your choice and organise them as variables in a list.

Use the fitMedia() function to play all the instruments simultaneously

Solution

```
ciara_drum = CIARA_SET_DRUMBEAT_1
```

```
pharrell_drum = ENTREP_BEAT_DRUMBEAT
```

```
khalid_drum = KHALID_NORM_DRUMBEAT
```

```
alicia_drum = AK_UNDOG_STEEL_DRUMS
```

```
drum_list = [ciara_drum, pharrell_drum, khalid_drum, alicia_drum]
```

```
fitMedia(drum_list[0], 1, 1, 8)
```

```
fitMedia(drum_list[1], 1, 1, 8)
```

```
fitMedia(drum_list[2], 1, 1, 8)
```

```
fitMedia(drum_list[3], 1, 1, 8)
```

http://tiny.cc/yvip_l2_sol

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