Relationship Between Music and Mental Health

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LINK TO ORIGINAL POSTER

Abstract & Assumption

The prevalence of serious mental health conditions like:
- **Depression**
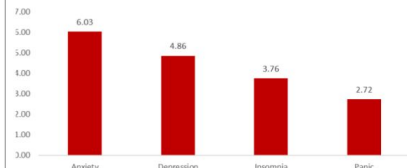- **Anxiety Disorder**
- **Insomnia**
- **Panic Disorder**

is rising, necessitating urgent attention and exploration of different treatments. On the bright side, it is often said that music often makes people feel much better. Then, which music genre works the best for different mental health conditions?

This poster investigates the therapeutic effects of different music genres on mental health.
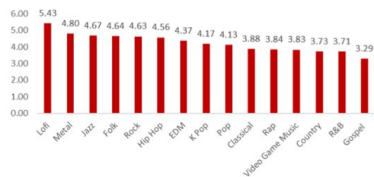
Key assumption: relaxing music genres like Lo-fi and Jazz would help best for improving mental health conditions.

Basic Statistics Visualization

### Average Rate of Each Mental Health Conditions Occurence

Bar chart: Anxiety 6.03, Depression 4.86, Insomnia 3.76, Panic 2.72

Relationship Between Mental Health Conditions and Positive Effect of Each Music Genre

Bar chart values: LoBI 5.43, Metal 4.80, Jazz 4.67, Folk 4.64, Rock 4.63, Hip Hop 4.56, EDM 4.37, K Pop 4.17, Pop 4.13, Classical 3.88, Rap 3.84, Video Game Music 3.83, Country 3.73, R&B 3.71, Gospel 3.29

Motivation & Audience

I'm passionate about both music and psychology. Thus, I aimed to research a topic that can help people. specially benefitting both **individuals diagnosed with mental health conditions and music enthusiasts**.
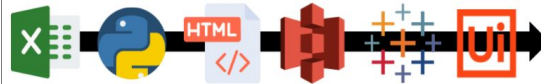

Scan for Interactive Website
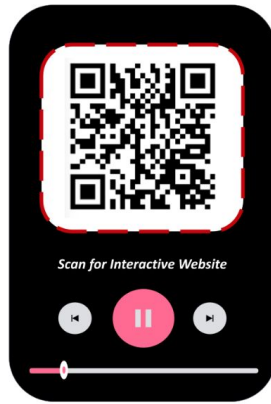
How It Works...

1. **Input** four mental health conditions' ratings (1-5)
2. See result and **press [Retake]** for new inputs
3. **Press [Finish]** to end the model

Process

| Advanced Excel | Python | HTML | AWS S3 | Tableau | UiPath |

Tools Used

Tool	Step	Details
Advanced Excel	**Data Collection, Cleaning & Wrangling**	Survey participants: 1. ranked each of their mental health conditions 2. chose their favorite music genre 3. …and indicated if the music genre actually helped them feel better or not.
Python	**Data Modeling**	Applied python functions for basic model building.
HTML	**Website Building**	Designed user-friendly website. Users can interact with the model with just few clicks and inputs.
AWS S3	**Website Hosting**	Utilized S3 bucket for hosting website.
Tableau	**Visualization**	Visualized basic statistics using bar graphs.
UiPath	**Automation**	Automated data analysis and input process.

Conclusion & Potential Usage

Result: As expected, top ranking music genre was Lo-fi, known for its relaxing nature. Other genres varied based on different mental health conditions.

General audience feedback: For areas to improve, widening the input range for mental health condition inputs would enhance analysis.

Future implementation:
- song recommendation model in music apps and/or websites
- better understandings of mental health challenges in society

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Data source/reference: Surveys

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Music & Mental Health

So Young Oh

Mental health conditions:

Depression

Anxiety

Panic Disorder

Inomnia

On the bright side, people often say music makes them feel much better.

Then which music genre works the best for different mental health conditions?

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Key Assumption

Music have positive impact on mental health improvement, and Lo Fi music would rank high due to their relaxing nature.

1. Excel (data collection & cleaning)

	Fav genre	Anxiety	Depressio	Insomnia	Panic	Music effects
1	Fav genre	Anxiety	Depressio	Insomnia	Panic	Music effects
2	Classical	6	6	8	2	Improve
3	Classical	0	0	1	3	Improve
4	Classical	4	6	5	3	Improve
5	Classical	1	1	3	1	Improve
6	Classical	3	3	1	2	Improve
7	Classical	6	8	9	5	Improve
8	Classical	6	5	6	8	Improve
9	Classical	7	2	2	0	Improve
10	Classical	5	7	5	4	Improve
11	Classical	4	2	0	0	Improve
12	Classical	8	7	5	4	Improve
13	Classical	9	6	1	1	Improve
14	Classical	7	6	4	0	Improve
15	Classical	0	0	3	0	Improve
16	Classical	2	2	3	2	Improve
17	Classical	7	5	3	2	Improve
18	Classical	8	5	10	3	Improve
19	Classical	6	8	8	2	Improve

	Anxiety	Depressio	Insomnia	Panic
Lofi	6.1	6.6	5.6	3.4
R&B	5.038462	3.576923	3	3.230769
Rap	5.470588	4.352941	2.411765	3.117647
Hip Hop	6.290323	5.677419	3.258065	3.032258
Rock	6.5	5.321429	3.829365	2.853175
EDM	5.333333	5.133333	4.2	2.833333
Pop	6.158824	4.394118	3.211765	2.747059
Metal	6.343284	5.462687	4.716418	2.686567
K Pop	6.473684	4	3.631579	2.578947
Jazz	6.4375	5.1875	4.5	2.5625
Country	5.15	4.3	2.95	2.5
Video Gan	5.538462	4.076923	3.192308	2.5
Classical	4.846154	4.128205	4.205128	2.333333
Folk	7.086957	5.565217	3.608696	2.304348
Gospel	4.833333	2.666667	5.333333	0.333333

```
Rate your Anxiety from 1 to 5: 1

Rate your Depression from 1 to 5: 3

Rate your Insomnia from 1 to 5: 4

Rate your Panic from 1 to 5: 2

Optimal Music Recommendations:
1. Lofi
2. Gospel
3. Folk

Would you like to take again? (Enter Yes/No) 4

Invalid input. Please enter Yes or No.

Would you like to take again? (Enter Yes/No) yes

Rate your Anxiety from 1 to 5: 2

Rate your Depression from 1 to 5: 3

Rate your Insomnia from 1 to 5: 1

Rate your Panic from 1 to 5: 2

Optimal Music Recommendations:
1. Lofi
2. Folk
3. Hiphop

Would you like to take again? (Enter Yes/No) no

Thanks for participating!
```

```
Rate your Anxiety from 1 to 5: 2

Rate your Depression from 1 to 5: 3

Rate your Insomnia from 1 to 5: 4

Rate your Panic from 1 to 5: [          ]
```

If answers "yes" to retake question, the model goes all the way back to the start and rerun

Average Rate of Each Mental Health Conditions Occurence

Condition	Value
Anxiety	6.03
Depression	4.86
Insomnia	3.76
Panic	2.72

Relationship Between Mental Health Conditions and Positive Effect of Each Music Genre

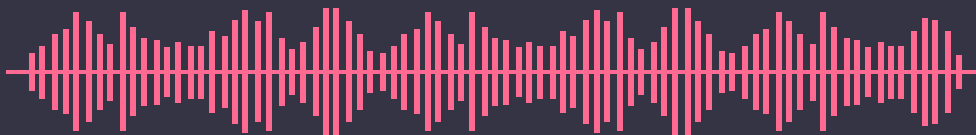| Genre	Value
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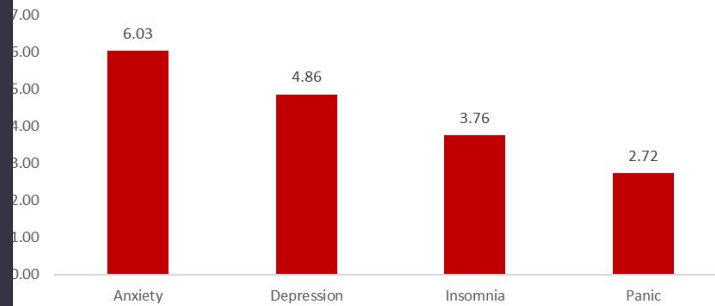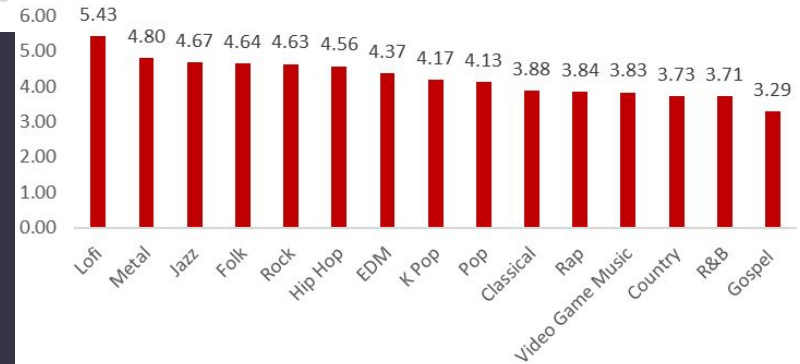
Lo Fi was indeed one of the top ranking music genres and others varied according to the mental health conditions

Estimated Impact

Help people with mental health conditions to at least feel better.

Audience Feedback

A lot of them said that results actually matched their favorite music genre, indicating that calculation is actually working.

Areas to Improve

Widening the mental health measurement range.
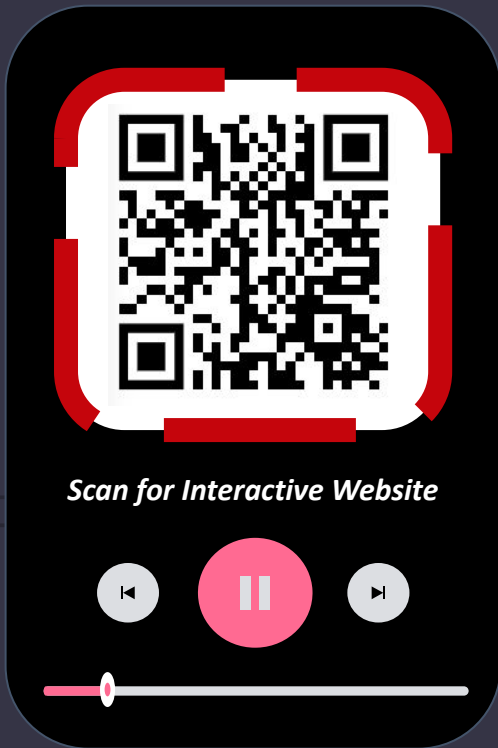
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Clients can...

Personally use the model to:
- Figure out which music genre to listen to

- Investigate more on personal interest

- Develop an application or website for song recommendation system (Business Benefit)

Final Product

Scan for Interactive Website

https://musicmh.s3.amazonaws.com/Musicmh.html