

# Music chart predictor

This technology will be used to gather data from an artists previous song/album releases, and will try to predict if a song will go popular or not.

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## Impact on society

What impact is expected from your technology?

### What is exactly the problem? Is it really a problem? Are you sure?

This technology will help artists, record labels, DJ's etc help choose which songs will become popular and have the most longevity.

### Are you sure that this technology is solving the RIGHT problem?

As music can have lots of variety and differ a lot between peoples taste, I don't think this technology will solve the complete problem, of helping DJ's etc to predict a songs popularity. But I think it will be a helpful tool to asses situations per song and get a clear picture of what is to come.

### How is this technology going to solve the problem?

By using a decision tree algorithm, my project will have an accuracy between 0.8 and 0.95 versus the real deal. I will test this by comparing related work from other people, such as stock predictions etc. And testing multiple varying models.

### What negative effects do you expect from this technology?

There could be a few negative effects because of this technology.

As this technology could impact what classifies as popular music, based on previous choices. It could establish a status quo, where new music genres will not gather any popularity based on this algorithm.

So for example, if this technology was released in the 1950's, and someone would put in the data for a new genre (rock). It wouldn't give this song any popularity and could therefore skew public perception that it would be doomed to fail.

This technology could also pose a problem as historical popularity is always biased. So a record label that pumps a lot of money in promotion and marketing, would have a much higher chance for a song to chart based on these predictions.

### In what way is this technology contributing to a world you want to live in?

It would help artists, DJs and labels perform accurate checks on their charting songs, and see if they can boost it somehow or just drop it completely.

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**Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.**

To help a few of the shortcomings, it could take genre of a song as a small suggestion for the prediction. Therefore it won't skew too heavily to any defined genre and would leave room for new genres.

It could also take critics/user ratings for each song, so a song that is "bad" but really promoted, won't chart as popular such as a song that is good but not promoted. This would make it that big record labels can't just throw money at a song to make it popular.

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## Hateful and criminal actors

What can bad actors do with your technology?

### **In which way can the technology be used to break the law or avoid the consequences of breaking the law?**

There seem to barely be any way to break the law or avoid consequences of breaking the law.

However it could have a negative-impact if an upcoming artist would hack/manipulate the algorithm with fake data, so his new song would come out on top, instead of other more deserving artists.

### **Can fakers, thieves or scammers abuse the technology?**

If a dedicated fan of lets say Ed Sheeran, uses this tool and sees his latest song isn't going to perform as great as this person wants to. He could go on ahead and try to harrass anyone involved with releasing this song, before seeing the actual reality of how the song will chart.

### **Can the technology be used against certain (ethnic) groups or (social) classes?**

Songs by poor/lower class people could be assesed differently as they don't have the same marketing capabilites as the bigger names in music. Therefore this tool will predict there songs to chart lower despite their music quality.

### **In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.**

Bad actors could use this tool to incite rage in fan circles of a artist, if there song will chart badly.

### **How could bad actors use this technology to subvert or attack the truth?**

Bad actors could try to manipulate the data ,so there song will be predicted to chart higher than it should have based on the actual data.

### **Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.**

There are a few things bad actors could do, however most would indicate a security breach of some kind. So therefore when this tool would be released,

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I should try to make it as secure as possible.

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## Privacy

Are you considering the privacy & personal data of the users of your technology?

*This category is not applicable for this technology.*

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## Human values

How does the technology affect your human values?

### **How is the identity of the (intended) users affected by the technology?**

This could affect the perception a user has of a song prior to listening to it. As a user can see that the song barely has any popularity, he would be less inclined to listen to such a song as opposed to one of the more popular ones.

### **How does the technology influence the users' autonomy?**

A user could see a chart predicted by this technology, and if its popular go listen to that song. This could also skew that users perception to have a more positive or negative attitude to that song before listening, based on its popularity.

This could be seen as the technology making a decision for the user.

### **What is the effect of the technology on the health and/or well-being of users?**

For an artist, this could be seen as stressful or manipulative. As making a song can be a lot of effort, and afterwards putting it in the algorithm to see it not being popular could be a stressful time.

Furthermore if you put that song in the algorithm, and it shows that it will be popular. The artist can get the notion that this is 100% true. And if it turns out it is a flop, the user could see this as manipulative.

### **Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.**

In this technology it should be clear that any result is speculative, and not an indication of what will happen in the future.

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## Stakeholders

Have you considered all stakeholders?

*This category is only partial filled.*

**Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.**

**Name of the stakeholder**

Artists

**How is this stakeholder affected?**

This person could see how the predictions on how their songs will chart, and therefore he could focus on the ones that will chart fairly well. Thus turning them into hits.

**Did you consult the stakeholder?**

No

**Are you going to take this stakeholder into account?**

Yes

**Name of the stakeholder**

Music listeners

**How is this stakeholder affected?**

This person could listen to a nice song and than checking how it will chart in the future.

**Did you consult the stakeholder?**

No

**Are you going to take this stakeholder into account?**

Yes

**Name of the stakeholder**

Record labels

**How is this stakeholder affected?**

A company could see a new artist with a new song chart really well, and try to give him a record deal.

**Did you consult the stakeholder?**



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No

**Are you going to take this stakeholder into account?**

Yes

**Name of the stakeholder**

Djs

**How is this stakeholder affected?**

This person could check out the best charting songs, and play them during their upcoming performance.

**Did you consult the stakeholder?**

No

**Are you going to take this stakeholder into account?**

Yes

**Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?**

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**Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.**

I think this tool is sufficient for all stakeholders at the moment.

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## Data

Is data in your technology properly used?

### **Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?**

Yes as we can't 100% accurately predict each and every song, there can be a lot of subtle interactions that will cause a certain song to blow up that we can't account for.

However we will try to get as close to complete accuracy as possible.

### **How does the technology organize continuous improvement when it comes to the use of data?**

New data can be added if necessary through the preparation notebook.

### **How will the technology keep the insights that it identifies with data sustainable over time?**

As the data that is gathered now is from Kwordb.net, it could pose a issue if it ever shuts down or get bought by a 3rd party. However I'm planning on implementing an algorithm that does the same function what kwordb.net does, on Spotify's API.

### **In what way do you consider the fact that data is collected from the users?**

There is no business model behind this project.

### **Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.**

The data is suffecient enough for now, but there could be improvements in the future.

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## Inclusivity

Is your technology fair for everyone?

### Will everyone have access to the technology?

Yes, they will

### Does this technology have a built-in bias?

This technology will have a bias to the more popular genres in the industry. As pop songs often do way better on the music charts than a more niche genre like heavy-metal.

### Does this technology make automatic decisions and how do you account for them?

Yes, it will predict how many streams a song will have based on current data. As it's tested on various older songs, it has a fairly well document accuracy.

### Is everyone benefitting from the technology or only a a small group?

#### Do you see this as a problem? Why/why not?

The people that benefit the most are the ones that could influence the algorithm to their own benefit. This means that big institutional companies could see a big increase in sales through this technology if it gets widespread uses.

However as anyone can use it I could also see a smaller benefit for each user. As they can use it to check up on their favorite songs and see how they will chart.

### Does the team that creates the technology represent the diversity of our society?

As I'm the only one working on this project, there is no diversity.

### Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

As it's available to anyone I don't foresee any changes.

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## Transparency

Are you transparent about how your technology works?

### **Is it explained to the users/stakeholders how the technology works and how the business model works?**

It will be explained how the data is gathered and what it is gathering. Furthermore the general idea of how the AI will predict the upcoming streams will also be explained.

### **If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?**

This is explained in the results document that will be available to anyone.

### **Is it possible to file a complaint or ask questions/get answers about this technology?**

If a user has any questions or notices a bug, they could contact me through mail.

### **Is the technology (company) clear about possible negative consequences or shortcomings of the technology?**

This is explored in the impact to society and bad actors. However to summarize, there could be some negative consequences if someone really wants to, but no major ones.

### **Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.**

As this technology is already fairly transparent, there won't be changes in the near future.

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## Sustainability

Is your technology environmentally sustainable?

### In what way is the direct and indirect energy use of this technology taken into account?

It will be hosted on a webserver, and will use the processing power of the users hardware to access the webserver.

### Do you think alternative materials could have been considered in the technology?

As this is a software based program this is not really applicable. It could only use more "greener" power such as hydro, wind, solar or nuclear. But that is in the hands of the power supplier.

### Do you think the lifespan of the technology is realistic?

As this is a software based program this is not applicable.

### What is the hidden impact of the technology in the whole chain?

Use of "greener" electricity could improve this technology as previously mentioned. Another hidden impact could be that the electricity used for this project, could've been used for a project involved in helping the environment.

### Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.

The only improvement I could think of is trying to find a host that uses green power.

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## Future

Did you consider future impact?

### What could possibly happen with this technology in the future?

If it's not maintained well it, could decrease in accuracy over time because there will be more datapoints accessible that aren't gathered.

### Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.

I've been making music for 20years up to this point, and its always a struggle to know what all my fans love. I've released songs I thought were amazing but my fans hated. And vice verse.

I almost wanted to give up making music till I found this amazing tool. It helps me accurately see which of mine songs my fans will love, and it made me appreciate music way more. Now I've become even more sucessful than I once was.

### Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.

Every song that is made first goes through the algorithm, and if it won't be popular it is destroyed.

There hasn't been a new genre of music in over 30 years, and there won't be a new one in the future.

Every song is a variation of the same popular songs in 2020, and we're sick of it.

### Would you like to live in one of this scenario's? Why? Why not?

As both of these scenarios are extremes, it's really hard to see either of them come to fruition. I wouldn't mind the utopian one as it seems fine. The dystopian one however, I would rather not, but it also doesn't make the world inhospitable just boring.

### What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?

As I plan to make this technology available for everyone and open source, I don't think anyone will offer me a million dollars for it. However if someone did I would still take them up on the offer.

As for the handling of the technology if passed on to another owner. I would

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like to say that I'd be as transparent as possible as to how my technology works at that moment. And as it's opensource, future changes should also be visible for the users.

**Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.**

This technology should have a clear warning to take the outcome as a suggestion and not the law. Most of the dystopian scenarios will only rob people of their creativity in music, if this technology is followed to the dot. However there is no clear way to deter users from strictly following this technology.