

# Housing Price Predictor

Machine learning techniques are applied to analyze the information gathered to create models for house buyers and sellers and therefore, help them have more knowledge about the real estate they are buying/selling. The project will be conducted by analysing past market patterns and value ranges that are in the dataset. In this project I am going to predict the price of houses and I will verify my results by the training of the models.

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# Technology Impact Cycle Tool

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## Impact on society

What impact is expected from your technology?

*This category is only partial filled.*

## What is the challenge at hand? What problem (what 'pain') does this technology want to solve?

In their lives, at least once, people had the opportunity to rent or buy a property at an overrated price. The prediction project will help people get better overview of how the prices vary.

## Can you indicate why you are sure that this technology is solving the right problem?

This technology is designed to predict the prices of housing properties which gives the benefit to people know how much money they will need to invest in a real estate.

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

The quality of the AI is dependent on the data set extracted from websites. The goal is to predict the price, therefore taking into account features such as type of a property, living area or address, the price will be conducted. Based on feedback the project is being constantly improved.

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

We are thinking about negative effects all the time. During brainstorm we thought of the following. A negative effect could be 'having some deviation of the value'.

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

Very much. We like to live in a world where technology enables people to freely make choices. If people have the desire to change their current place of living and do not know how much money they will have to save, this project will help them have this idea.

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

*This question has not been answered yet.*

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## Hateful and criminal actors

What can bad actors do with your technology?

*This category is only partial filled.*

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

If too much data is exposed for the future value of the Bitcoin and therefore, people get to only win from it, then it will diminish its value.

### **Can you imagine this technology being used to cross personal - or societal boundaries?**

*This question has not been answered yet.*

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

*This question has not been answered yet.*

### **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.**

*This question has not been answered yet.*

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

*This question has not been answered yet.*

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

*This question has not been answered yet.*

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## Privacy

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

*This category is only partial filled.*

### **Does this technology register personal data? If yes, what personal data?**

The technology will take data set, consisting only of the housing features, such as type, price, postcode, livin area, rooms.

### **Do you think this technology invades someone's privacy? If yes, in what way?**

This project does not invades anyone's privacy because it does not include any personal information.

### **Do you think this technology is compliant with prevailing privacy and data protection law and can you indicate why?**

Privacy is not the same as data protection. Privacy as a fundamental human right is embedded in national and international constitutions and conventions. So, to be compliant with privacy and data protection legislations, I have these principles in mind.

### **Does this technology mitigate privacy and data protection risks/concerns (privacy by design). Please indicate how.**

*This question has not been answered yet.*

### **In which way can you imagine a future impact of the collection of personal data?**

*This question has not been answered yet.*

### **Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.**

*This question has not been answered yet.*

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## Human values

How does the technology affect your human values?

### How does your technology affect the identity of users?

The technology is rather beneficial to the users than harmful. It does have an effect on people's lives by helping them be more acquainted with the real estate prices. It is definitely not stigmatising.

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

It does not. People cannot get dependent on this and they will be able to make decisions for themselves.

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

If the technology lacks UX design, it could be confusing or stressful for people who are not familiar. However, in order to eliminate such issues, feedback will be regularly taken from users.

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

I would test the project more to be sure that users find it suitable for their purposes.

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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?

### Name of the stakeholder

Buyers

### How is this stakeholder affected?

This stakeholder is dependent on change of the price of housing properties in order to buy one.

### Did you consult the stakeholder?

Yes

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

Yes

### Name of the stakeholder

Sellers

### How is this stakeholder affected?

This stakeholder is dependent on how the price of housing properties vary and how much is demanded in order to sell one.

### Did you consult the stakeholder?

Yes

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

Yes

### Name of the stakeholder

Tenants

### How is this stakeholder affected?

This stakeholder is dependent on change of the price of housing properies and by what features it varies in order to rent one.

### Did you consult the stakeholder?

Yes

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Are you going to take this stakeholder into account?

Yes

**Name of the stakeholder**

Housing agencies

**How is this stakeholder affected?**

This stakeholder is dependent on change of the price of housing properies in order to know how to consult customers.

**Did you consult the stakeholder?**

Yes

**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.**

By our stakeholder-analysis we even more realized that the project is beneficial and no improvements are considered for now.

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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 your technology?**

Yes, dependent on the available data which is extracted from the housing website. The limits are clear to me, so the technology will be made with the awareness of these limitations and the users will be notified about them before beginning their experience with the application.

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

The project will be constantly updated since the data is scraped, which makes it always up to date.

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

The data and used algorithms will be kept current and the data will not be available for a reasonable period of time in the future, even when the source generator(s) are discontinued or sold to a third party.

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

People do not receive any profit from this project. There is no business model behind the housing 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.**

Not at the moment, no.



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## Inclusivity

Is your technology fair for everyone?

### **Will everyone have access to this technology?**

Yes. However people will be charged a subscription fee.

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

Yes, of course, the project is biased because there is one version for all users. Therefore, there can be only one subscription.

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

Users will be able to know partially how the price is calculated and then, see the result.

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

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

I believe that this project adds a new service to society, so its creation does not disrupt existing economical models.

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

No, it is only me in the creation for now.

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

No, not for now.

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## Transparency

Are you transparent about how your technology works?

### **How is it explained to the users about how a technology works and how the business model works?**

I do explain - in broad terms - how the technology works in the documentation of the project. I list the data sources I use to feed the AI to create the predictor.

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

I do not. The decisions the technology makes are: 'what is the final price of housing property?', etc. I do not explain these details to users. They can be provided with the way of calculating the price only if they want to, otherwise, they will receive only the result.

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

Users can always choose to terminate the subscription. It will be asked for them to leave a feedback if they want to, of course.

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

No for now.

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

I have plans to provide a feedback-section, reviews for users.

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## Sustainability

Is your technology environmentally sustainable?

*This category is only partial filled.*

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

Since the data is changing every day because the housing companies changes their catalogs, the data is always up to date.

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

This question is not applicable since we create a software - based product.

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

This question is not applicable since we create a software - based product.

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

*This question has not been answered yet.*

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

I am planning on making changes to the technology or making changes to the context in which the technology is used, or making changes in the way the technology is used after receiving user feedback.

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## Future

Did you consider future impact?

*This category is only partial filled.*

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

The housing price predictor can be an important appliance for people. There is a lot of future benefits for society.

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

*This question has not been answered yet.*

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

Imagine two students who just got married after graduating from university. They have no extra money saved to start a family, buy a house and a van. This technology will provide them with needed information how much money they need to do their goal.

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

No, but if I did live in one, I would appreciate the extra information.

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

No, I have not thought about this.

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

Things will change and society changes as well. For now I do not have any improvements to state.