

Ethical use of data (Answers)



Worksheet section	Contents
1	Data ethics risks
2	Data frameworks

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1. Data ethics risks

Section 1.1 (recall)

- 1) Fill in the missing words for this definition of a data ethics

Branch of ethics that looks at the questions related to data

Section 1.2 (rephrase)

- 2) That are generally 8 areas of ethical data risks and problems. Fill in the missing gaps for the descriptions of the areas.

Area	Description
Truth	Technology could be used to either undermine the truth, or spread disinformation or propaganda. This may only be a risk if the technology falls into the wrong hands.
Health	Technology could affect the mental, physical or social health of the users that engage with it by encouraging addiction or maximising user attention.
Equality	Technology could be amplifying existing economic inequalities if those without access to it end up losing out.
Fairness and Bias	The technology could be amplifying and reinforcing existing biases, having been developed on datasets containing historical bias.
Human rights	Technology could infringe the human rights of citizens
Privacy	Personal data collected could be being disclosed with the individuals knowledge or control.
Trust and transparency	User may not be fully aware of how their data is being used within the technology
Criminality	Technology could be used for illegal activities, even if it were not designed for this

Section 1.3 (apply)

- 3) For each of the situations described below, list any areas of data ethical risks/problems that could be arise.

	Areas of ethical risks/problems
Voice recognition software is developed using databases use 69% male voices	Equality, fairness & bias
A supermarket sells the information collected on their loyalty cards about their customers shopping habits to a marketing company.	Privacy, Trust
A gaming app that will only allow you to play alongside your friends if you complete a daily task.	Health
Facial recognition software is used to track students in a school and predict their grades through their tracked behaviour.	Privacy, Trust, Human rights, Fairness

1. Data ethics risks

- 4) 23andMe is a biotechnology company that provides a genetic testing service of customers saliva samples. The company combines this genetic information with other web behaviour such as the use of its website, products, software and its smartphone app. This data is very valuable to third party companies (e.g. life insurance companies)

Thinking about the ethical issues of combining this data and how it could be potentially sold/hacked. Describe how these ethical risks/problems could arise from using 23andMe.

Area	Description
Privacy	Customers could be unaware of how their genetic information could be combined with their web behaviour and could be sold to third parties.
Equality	People who are seen as "low-risk" due to their genetic information might be able to get discounts on products (e.g. life insurance) whereas people who can't afford to access their genetic information will not. (amplifying economic inequalities)
Criminality	If the data was hacked, the combined data could be used to illegally target or harm individuals.

Section 1.4 (active)

- 5) There are many examples of data ethical issues that have happened recently. Search online for an example and answer the questions below.

Here are some websites that might help you research ethical issues,

<https://online.datasciencedojo.com/blogs/big-data-ethics-10-experiments/>

<https://bdes.datasociety.net/council-output/example-big-data-research-controversies/>

<https://en.wikipedia.org/wiki/OkCupid#Controversies>

<https://www.invisibly.com/learn-blog/data-misuse-7-examples>

What company/individuals were involved in the ethical issue?

What happened?

What type of ethical issue was it? E.g. privacy, human rights

How do you feel about what happened?

2. Data frameworks

Section 2.1 (define)

- 1) To help individuals and companies to use data in an ethical way, frameworks can help. What is meant by a **data ethics framework**?

Ensures that choices related to the use of data within an organisation reflect and uphold its ethics.

Section 2.2 (apply)

- 2) For this question you will be using part of the UK government data ethics framework.

<https://www.gov.uk/government/publications/data-ethics-framework/data-ethics-framework-2020>

Imagine you have been asked to analyse the link between poverty and poor health in cities around the world.

Focusing on the 'Involve diverse expertise' section of the UK government data ethics framework, answer the following questions.

- a) To make sure you are using the data ethically, what experts would you need to speak to about your analysis?

Experts on poverty data and health data. Make sure you are using data in way that the data subjects consented to.

- b) How would you ensure diversity in your team?

Speak to experts in the countries you are analysing data about to see there are any issues you need to be aware of when using the data.

- c) How would you make sure your analysis is transparent? E.g. publish your results

Publish how you analysed the data and any assumptions you made. Ask for any comments or feedback on the analysis.

You have been asked to complete some data science projects. For each of the projects below, think through the ethical questions you could ask yourself before and during the analysis that would help you completed the project in an ethical way.

Some things to think about are,

- consent to use the data,
- trust and transparency,
- human rights,
- privacy
- keeping people informed.



- 3) You have been asked to investigate if you can use data from customer loyalty cards to predict what products they might buy next in the supermarket.

Is there....

What if....

Should ...

2. Data frameworks

- 4) You have asked to analyse Twitter posts about your home town and combine them with crime data from the police.

Is there....

What if....

Should ...

- 5) You have been asked to look at how positive/negative stories appearing on a persons social media feed impact on their mood.

Is there....

What if....

Should ...