Big data – Tracking during class

Assignment A

Select one of the practical examples and write a brief statement to answer the following questions in your own words. Use the related text and the illustration of the practical example as an aid. Add your own ideas and thoughts.

- What is the example about?
- What does this have to do with big data?
- How are data collected or analyzed in this case?
- What data are transmitted?
- For what purposes can the data be further utilized?
- What is worrying about this?

Solution
These key points have been taken from the practical example texts and serve as starting points and orientation for your answers.

	What is it about?	What does this have to do with big data?	How are data collected and analyzed?	What data are transmitted?	For what purposes can data be further utilized?	What is worrying about this?
Data-driven election campaign	Political parties use big-data analyses for targeted communications during an election campaign.	Analysis of voter registries, creation of comprehensive databases, marketing and lifestyle data of the people, analysis of these databases	Available voter registries, purchased marketing and lifestyle data, phone surveys, door-to-door canvassing, Facebook profiles, own web content	Name, address, telephone number, ethnicity, party preference, lifestyle, appearance, clothing and cultural preferences	Strategies for online communications, selective influencing of undecided voters	Lack of users' awareness of why their data is collected, what other data their data are combined with, and what various conclusions are possible; possibility of personalized influence

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						that remains mostly obscure for scientific studies and therefore runs "unchecked" to a certain extent
Intelligence service/ government surveillance	Security for citizens, compliance with laws, and averting of dangers by the authorities, police, and intelligence services	Surveillance and analysis methods are based on large volumes of data from various sources; "pre-crime" methods are intended to help predict crimes	Video cameras, monitoring of Internet communication via smartphones and computers; data leaks that are brought to the investigating institutions	Movements in buildings, public squares, or transportation; communication via e-mails, Messenger, and social media channels; locations, movements, services used, transactions made	Track down particular persons during manhunts, observe them, and predict what they will do or where they will go; predict riots and crimes	Data "by-catch" – personal data of innocent citizens in authorities' registers; risk of unfounded suspicions and false identifications
Personalized online advertising	Personalized online advertising on a website, in an app, or on social networks that is intended to match the user's needs and/or interests	Detailed interest and personality profiles through vast amounts of people's profile data; data are collected with tracking software	Tracking software: cookies, fingerprinting	Age, gender, place of residence, and the interests, situation in life, whereabouts, viewed content, activated functions, clicked links, device data	Place advertising messages with the right people, at the right time, and in the right applications	Data tracks can be matched to a particular ID, added together, and combined to build a profile that becomes increasingly comprehensive

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Virtual gaming worlds: Pokémon Go	Virtual worlds merge with the real world in games	Accessing of big-data pools (geographical information) of Google Maps; linking of information and providing it to players in real time	Satellites, GPS trackers, sensors, web trackers	Location data/GPS coordinates, weather data, movement and action data of players, visited websites, used apps and services; moves, Pokéstops, game levels, whereabouts, how long the game is played, gaming partners, device model, manufacturer, operating system and version, device ID, memory utilization, country code	Geo-based advertising; for improvement of digital maps; sharing with third parties	Use of the collected data by the manufacturer and other service providers is not transparent
Cloud computing	Cloud computing as the use of powerful storage or computing services via the Internet in remote data centers, to be able	Masses of data and programs are stored so that they are accessible to particular users or to all users; storage capacities and	Uploading and editing of translations; crawlers that automatically search for applicable data	Previously translated documents, word order, syntax, idioms, dictionary entries, text modules; private data that have been	Language translation services such as Google Translate or DeepL; improvement of offer/service	Companies use data to improve their services and thus to solidify and expand their market power and to offer personalized

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	to access data and software from multiple devices	computing power of own hardware are no longer sufficient		uploaded to cloud-based applications		advertising.
The Internet of Things	The Internet of Things, that is, when devices and objects are connected with the Internet (for example, fitness trackers, thermostats, blinds, clothing), smart home, wearables	Collection and analysis of large masses of data of each individual user	Sensors, Bluetooth, wireless network, NFC chips, smartphone	Location, movement data, pulse rate, body temperature, muscle tension, skin moisture, steps taken, heartbeat, air pressure, ambient temperature, humidity	Identify dangers, reduce costs, improve products and services	Manufacturers share data with other providers who develop personalized advertising, unclear when devices with cameras or microphones are recording

Assignment B

The principal of your school has decided that from now on, you students will be tracked during class via your devices (smartphone, laptop, tablet). Tracking during class would mean, for example, that your teacher would receive information on how long you need for an assignment or where your strengths and weaknesses lie.

Come up with three arguments in favor of such tracking during class (pros) and three arguments against it (cons). Afterwards, present the arguments to your classmate next to you and discuss them with him or her. Then present your discussion of the arguments to the entire class.

Solution
These are sample arguments. Of course, you can also add your own ideas.

	Pros **Tracking during class**	**Cons** **Tracking during class**
Argument 1	Individual support of students possible, for example, through more tasks for students who work through the tasks faster, or fostering in subjects in which they show particular interest	The school has access to private devices
Argument 2	Early, quick detection of which students still have difficulties (instead of waiting for tests) and thus the possibility to respond in a timely manner	Invasion of privacy through constant surveillance, perhaps also when the students do not even notice
Argument 3	No “overlooking” of a student who contributes little during class because each student is observed	Danger of wrong conclusions: working slowly is not the same as doing poor work, but perhaps careful work; it is not clear whether a student has received help ...