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Summary

In 2018, it became public knowledge that millions of Facebook users' data had been harvested without their consent. At the heart of the issue was Cambridge Analytica (CA) which in partnership with Cambridge researcher, Aleksandr Kogan harvested data from millions of Facebook profiles. Kogan had developed an application called "thisisyourdigitallife" which featured a personality quiz and CA paid for people to take it. The app recorded results of each quiz, collected data from quiz taker's Facebook account such as personal information and Facebook activity (e.g., what content was "liked") as well as their Facebook friends which led to data harvesting of about 87 million Facebook profiles. The researcher then passed on this data to CA, which then used an algorithm that enabled them to psychologically profile people based on their Facebook interactions. Donald Trump had hired CA as a part of his 2016 Presidential election strategy. In order to deliver pro-Trump materials to individuals online, CA targeted individuals with a lesser known Facebook feature called "dark post" that contains personalized ads that are visible only to targeted individuals. CA consciously exploited fears of individuals with targeted advertising based on their personality profiles. The use of highly personalized ads made them vulnerable to Trump's messages that compelled them to vote for him. This digital onslaught played a significant role in Trump's victory over Hilary Clinton. This article will review how CA was able to harvest users' personal data and what were its repercussions. (Rehman,2019)

Introduction:

Social Media Platforms also called as Online Social Networks (OSNs) has the most important way to connect to the other people worldwide. This OSNs include the apps like Twitter, Youtube, Facebook, Linkedin and other apps. These apps are used to built the relationships with the other people also share their personal lives and give different services to each other. For example in the Linkedin, many of the people will give the resources of the knowledge to the other fields. Like a senior software engineer giving the resources to the other junior software engineers into a specific programming language through linkedin.

So, the number of social media users are increasing. As of February 2025, 5.56 billion individuals worldwide were internet users, which amounted to 67.9 percent of the global population. Of this total, 5.24 billion, or 63.9 percent of the world's population, were social media users. (Petrosyan, 2025). These number of people tells us about how all the people are dependent on the social media.
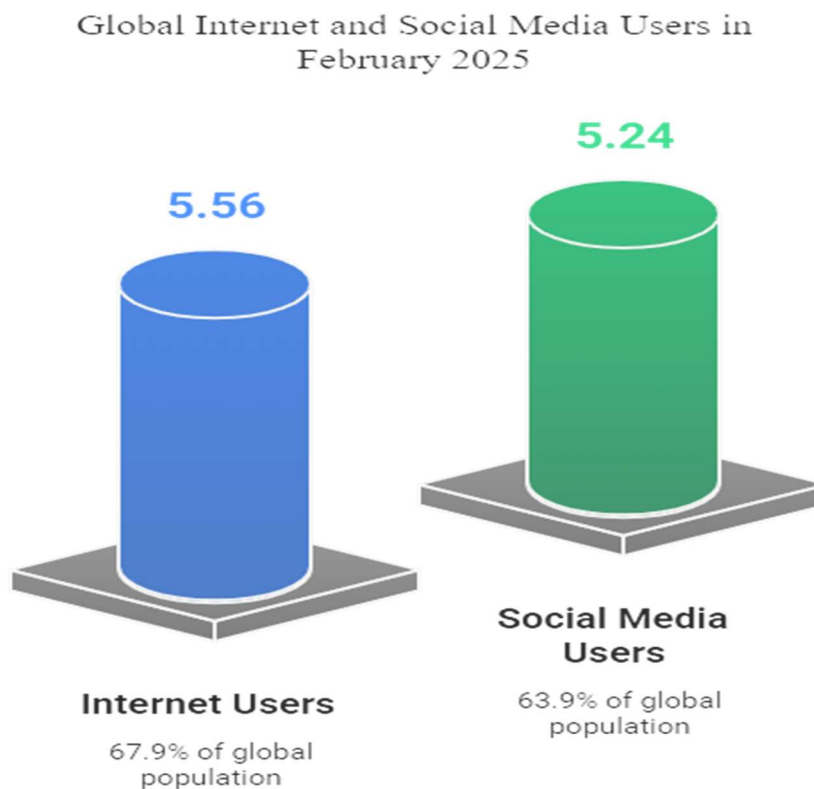

Figure 1

Now when these large number of people joined the social media there is very important thing to consider which is privacy. The formal definition of privacy is "Privacy is the ability of an individual or group to seclude themselves or information about themselves and thereby express themselves selectively".(WikiPedia). Many people share their personal information online through these social media platforms so it is essential for the team to protect the data of the people from which platform they are sharing the information.

Overview of Facebook:

Facebook is a social media and social networking service owned by the American technology conglomerate Meta. Created in 2004 by Mark Zuckerberg with four other Harvard College students and roommates, Eduardo Saverin, Andrew McCollum, Dustin Moskovitz, and Chris Hughes, its name derives from the face book directories often given to American university students. Membership was initially limited to Harvard students, gradually expanding to other North American universities. Since 2006, Facebook allows everyone to register from 13 years old, except in the case of a handful of nations, where the age requirement is 14 years. As of December 2023, Facebook claimed almost 3.07 billion monthly active users worldwide. As of November 2024, Facebook ranked as the third-most-visited website in the world, with 23% of its traffic coming from the United States. It was the most downloaded mobile app of the 2010s.(Wikipedia)

Many of the experts believe that Facebook takes advantage of its users by using the personal data for advertising and profit. They are of the opinion that Facebook privacy policies are often complex and lengthy and are mostly driven by profit motive. Most popular applications on Facebook Inc. have been allowing access to people's names, communicating identifying information, and in some cases, their friend's names to numerous advertising and internet tracking companies. This puts tens of millions of Facebook user's privacy under risk including the ones who set their profiles to Facebook's strictest privacy settings. This puts a question mark on Facebook's ability to keep identifiable information about their user's activities secure. Even though Facebook doesn't allow application makers transmitting data about users to outside companies even if a user agrees but some of its applications such as FarmVille, Texas

HoldEm poker and FrontierVille have been found of transmitting user information to outside companies. (Rehman,2019)

The biggest scandal involved in the facebook history is a "quizapp". In which the app collects the data of the users who give the quiz. The quiz app does not take the data from that person but also it takes the data from its friends as well whether or not that person giving the quiz or not. Then that data is shared among various researchers through a website which does not have the proper security so as a result the private data is exposed. In early 2018 it became public knowledge that information of millions of Facebook users had been harvested by many firms including Cambridge Analytica.

Figure 2

Overview of Cambridge Analytica:

Cambridge Analytica is a British based political consulting firm which was set up in 2014 as a subsidiary of Strategic Communication Limited group (SGL). It was partly owned by Robert Mercer—an American hedge fund billionaire. In 2014, Christopher Wylie, a Canadian data scientist went to work for Alexander Nix (former CEO, CA) at a company called SGL that specializes in influencing elections. Alexander Nix introduced Wylie to Steve Bannon (former Vice President, CA) who also happens to be the former White House chief strategist, as well as former head of Donald Trump's 2016 election campaign. They discussed their idea with Steve Bannon about how voter's opinions could be influenced during elections but for this project to

work they needed money so Bannon introduced their idea to Robert Mercer. The idea was to combine micro-targeting which had existed in politics and then target individuals not just as a voter but also as a personality and eventually creating a psychological profile of each voter in a particular region or in this case the whole of the United States. Robert Mercer was impressed with the idea and invested $15 million in CA. The whole idea was based on 2014 paper by Cambridge University's Psychometrics Centre, "Computer-based personality judgments are more accurate than those made by humans". To make the whole thing work CA needed data so Christopher Wylie first approached Michal Konsinski, one of the co-authors of the original myPersonality research paper in order to access the myPersonality database. But when negotiations failed, another psychologist and one of Konsinski's colleagues, Aleksandr Kogan offered them a solution that would replicate Stilwell's and Konsinski's original research.(Rehman,2019)
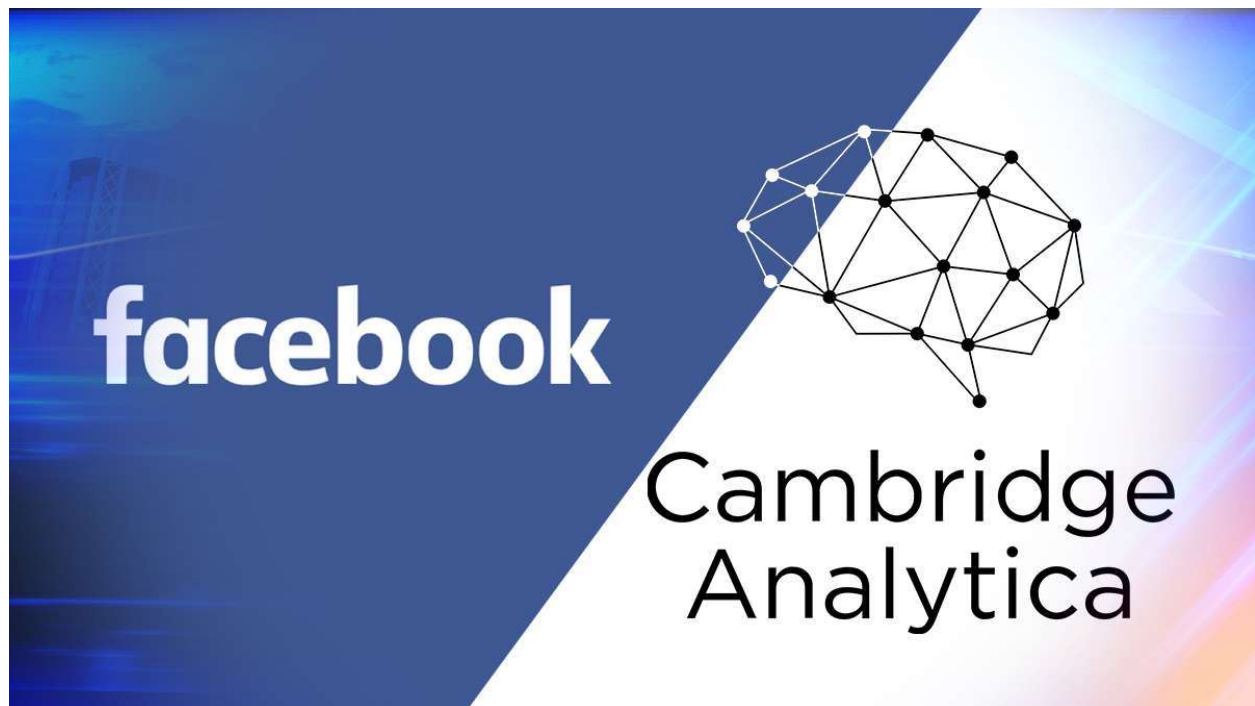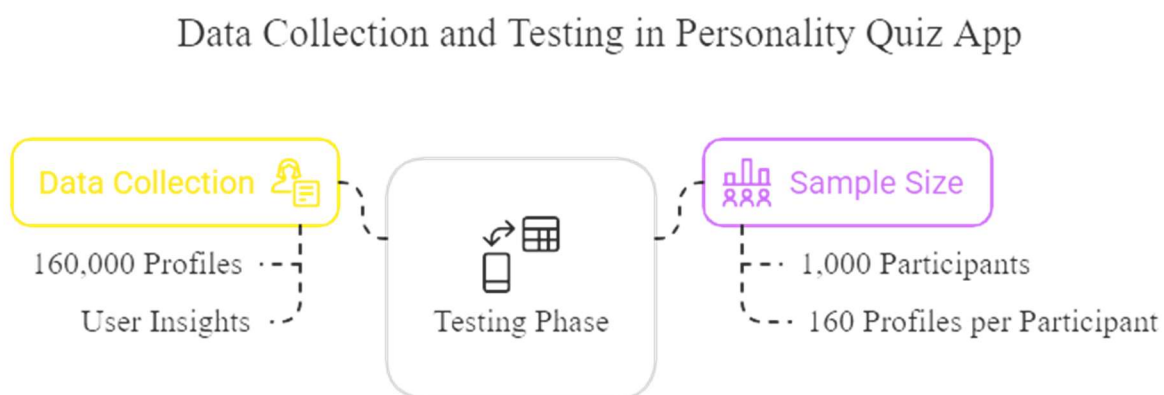

Figure 3

How 50 million Facebook records were harvested:

In 2014, Aleksandr Kogan founded a company called Global Science Research (GSR). As part of GSR, Kogan and his team created an app called "This Is Your Digital Life." This app was used by Cambridge Analytica to collect personal information from around 80 million Facebook users.

(Wikipedia). The CA is paid to the users to take a personality quiz and also asked that people that they collect their data for academic purposes. The app which is "This is Your Digital Life" had recorded the result of each quiz and also take the data of the people facebook account such as their likes, dislikes, videos to watch and also many of the personal information that contains the addresses of many of the people because many of the people share everything on the social media. Also the quiz does not only take the data of one person who is giving the quiz but also they take the data of their facebook friends as well without their permission. For the eligible for that personality quiz the user have a Facebook account and also he is a US voter. For the testing phase when they test this personality quiz app for 1000 people they have collected the data of almost 160,000 profiles or about 160 people per person. Now when the time goes, the Cambridge analytica have a database of millions of the people that have given that quiz. Now for that data they have algorithms that scans the data and then they identify the possible personal beliefs and personality characteristics of many of the people. Now they have used the process of micro targeting which is Microtargeting (also called micro-niche targeting) is a marketing strategy that uses consumer data and demographics to identify the interests and preferences of specific individuals or small groups to send targeted advertisements that align with their interests. (Gavin)

Figure 4

How they analyze the data of different Users:

The App have the data of millions of users now they want to extract some of the features or some of the results from it so that they want to proceed further. Now this involves the machine learning

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the formal definition of machine learning is "the field of study that gives computers the ability to learn without being explicitly programmed" (ISO). Now they have used many of the machine learning algorithms that takes the data from the user and then convert that data to the possible number of inputs and then for that number of inputs the data model is trained so that they give the possible answers of give recommendations based upon the user input.

What happened to that data:

The data collected from Facebook played an important role in Donald Trump's successful campaign against Hillary Clinton in the 2016 presidential election. The Trump campaign hired Cambridge Analytica during the election to handle data operations, identify voters to target with ads, decide where to hold campaign events, and assist with strategic communication, including speech content. Instead of trying to convince millions of voters, the firm focused on tens of thousands of people who, according to their analysis, were undecided. They created 32 personality types based on voter information and targeted individuals who were believed to be anxious or emotionally vulnerable, tailoring messages specifically to them. Cambridge Analytica identified many such voters in three key states: Michigan, Wisconsin, and Pennsylvania—states that could potentially shift the election results in Trump's favor. To reach these people, they used a little-known Facebook feature called "Dark Post." These are private, personalized ads that only the targeted individual can see. For example, if someone supported gun rights, they might receive a message like, "Did you know Hillary Clinton wants to take your gun away?" The ad would appear on their Facebook feed at a carefully chosen time and disappear after a few hours. The goal was to influence voters by sending negative messages about the opposing candidate. This digital strategy helped Trump gain 77,000 votes in those three crucial states, ultimately securing his victory. (Rehman, 2019)

Targeted Voter Influence Funnel

Voter Identification
Identifying key voter segments

Personality Profiling
Creating personality types

Targeted Messaging
Crafting personalized ads

Strategic Influence
Using dark posts for impact
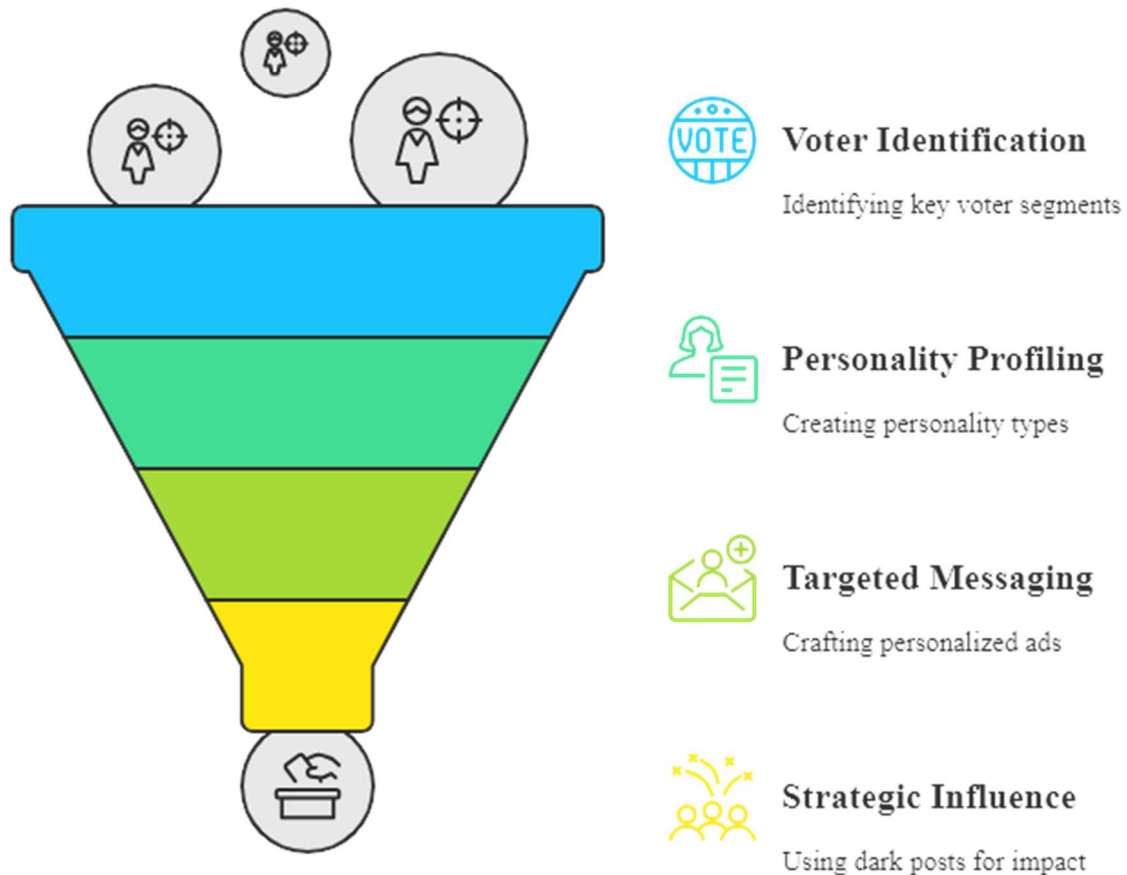
Figure 5

How did the Facebook react:

Now there is some concerns of the privacy for the facebook app. So in 2014 Facebook has changed their system so that they stop the apps from accessing the data of user friends. Also many of the developers of Facebook app have asked that they do not send any of the data of their users to other people privately. Now in the 2015 from many journalists the Facebook have found that Kogan and the Cambridge Analytica shared the information of the users without the permission. So it breaks the facebook rules, so Facebook banned the Kogan app and asked Kogan and Cambridge Analytica

to delete all the data they have collected. In the answer Kogan and Cambridge Analytica say that they have did that means they say they have deleted the data. But in 2018 in the news reports they have suggested that the Cambridge Analytica does not have deleted the data of the users. So the Facebook have completely banned the Kogan and Cambridge Analytica from their platform. The Facebook CEO, Mark Zuckerberg admit that situation and also it is a very serious breach of trust between the Facebook and the companies involved and also the Facebook and the users who trust that platform and share their personal information on that. For fixing the things the Facebook have do some of the things. Firstly, Facebook checks all of the previous apps that have the large amount of data before the change of rule of 2014. If any app is found suspicious then it will be banned permanently. Secondly, facebook just gave the basic information from the users and also if a person does not uses the app for 3 months then the app will lose the access of their data.
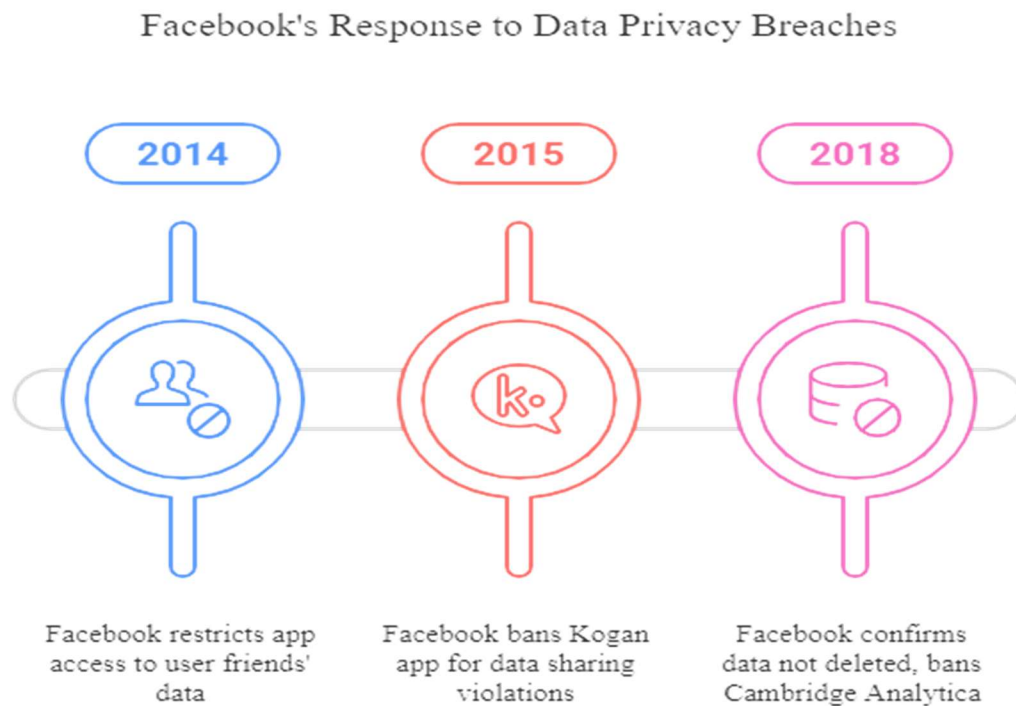
Figure 6

Impact on Facebook users and investors

The Cambridge Analytica data scandal had a big effect on both Facebook users and the people who had invested money in the company. After the scandal became public in March 2018, many users started to trust Facebook less. As a result, in April 2018, the number of people liking posts, sharing content, and writing on Facebook dropped by almost 20%. This means fewer people were active on the site. Although there were some short increases in activity during the summer and the 2018 U.S. midterm elections, the overall level of user activity kept going down after the scandal.

Even though people were using Facebook less, the number of users (people who signed up and had accounts) still grew slowly. In the last three months of 2018, Facebook's total number of users went up by 1.8%. This may have happened because the media was talking a lot about Facebook, so more people got curious and joined.

The scandal also had a strong effect on Facebook's stock market value. On March 26, 2018, just over a week after the story came out, Facebook's stock price dropped by 24%, which meant the company lost about $134 billion in value. This happened because investors were worried that people might stop using Facebook and that the company might get into legal trouble.

But this loss didn't last very long. By May 10, 2018, Facebook's stock price had gone back up, and the company had recovered all the money it had lost in the stock market. This showed that even though people were upset and using Facebook less, investors still believed Facebook was a strong company and would bounce back.

#DeleteFacebook Movement

After the Cambridge Analytica data scandal, many people were angry and disappointed with Facebook for not protecting their personal information. In response, a campaign started on social media with the hashtag #DeleteFacebook. This campaign encouraged people to boycott Facebook by deleting their accounts to show their disapproval.

One of the most surprising supporters of the movement was the co-founder of WhatsApp (which is owned by Facebook). He publicly said it was time to delete Facebook, which made the campaign

even more popular. The hashtag #DeleteFacebook was used nearly 400,000 times on Twitter in just 30 days after the news of the data breach. Around 93% of these posts were made on Twitter, showing that Twitter was the main place people used to spread the message.

However, even though many people were upset, a study by an investment company (Raymond James) showed that things were more complicated. The study found that 84% of Facebook users were worried about how Facebook handled their data. But at the same time, only 48% of those people said they would actually stop or reduce using Facebook. In fact, Facebook's CEO Mark Zuckerberg said in 2018 that the company didn't see a big number of people actually deleting their accounts. So, the movement was loud online, but not many people followed through with action.
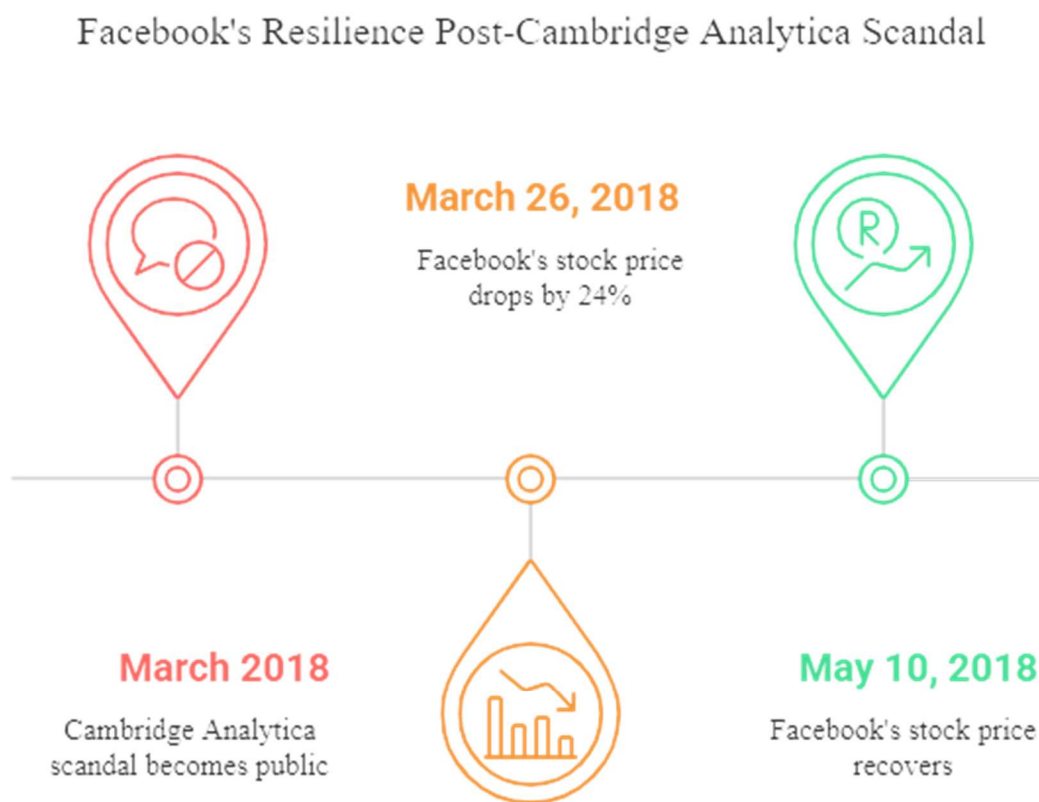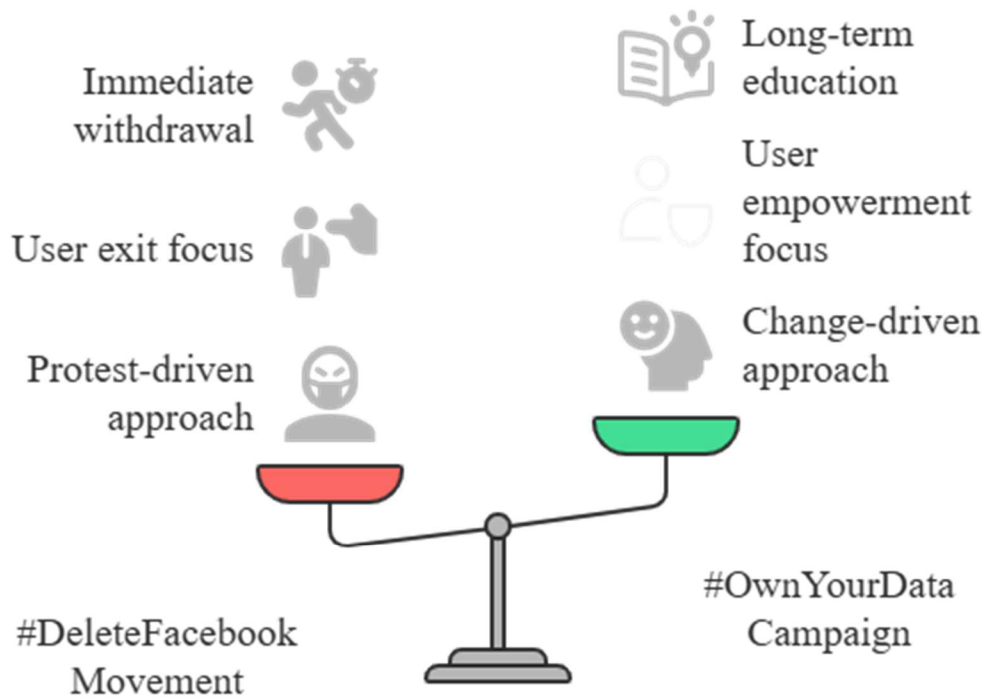

Figure 7

#OwnYourData Movement

Another important campaign that came out during this time was called #OwnYourData. It was started by Brittany Kaiser, who used to work with Cambridge Analytica. After the scandal, she began pushing for better data transparency and user rights.

The purpose of the #OwnYourData campaign was to give users more control over their personal information on Facebook and other platforms. Kaiser believed that people's data should be treated like their own property—something they own and should have full control over.

Along with the hashtag, Kaiser also started a petition asking Facebook to change its policies and give users more power. She also created the Own Your Data Foundation, which works to teach people about digital privacy and help them understand how to protect their data online.

In short, while the #DeleteFacebook movement tried to get people to leave Facebook in protest, the #OwnYourData movement focused more on **fixing the problem** by demanding change and **educating users**. Both campaigns were important in raising awareness about online privacy and how social media companies use our data.

Comparing Strategies for Data Privacy

Figure 8

The Great Hack

"The Great Hack" is a Netflix documentary released in 2019 that explains the Facebook–Cambridge Analytica data scandal in a clear and powerful way. It was the first full-length film that connected all parts of the scandal into one complete story. The documentary focuses on how Cambridge Analytica collected personal data from millions of Facebook users without their permission and used it to influence major political events, such as the 2016 U.S. presidential election and the Brexit vote. It explores how people's data was turned into a valuable tool for political campaigns and how this raised serious questions about privacy, democracy, and the power of big tech companies.

The film shares the real-life experiences of key people involved in the scandal. One of them is David Carroll, a professor from New York, who took legal action to find out what data Cambridge Analytica had collected about him. His journey shows how difficult it is for individuals to access and control their own information. Another important figure is Brittany Kaiser, a former employee at Cambridge Analytica who later became a whistleblower. She revealed many of the company's secret activities and played a major role in uncovering the truth behind the data misuse.

Overall, "The Great Hack" shows how our personal data can be used in powerful ways, often without our knowledge. It warns viewers about the hidden dangers of the digital world and encourages people to think more carefully about how their data is collected and used online. The documentary helps raise awareness about digital privacy, and the need for better laws and protections in today's data-driven world

Awareness and Action for Data Privacy

Data Misuse Awareness

Limited understanding of data privacy issues

Empowered Users

Individuals control their data and privacy rights
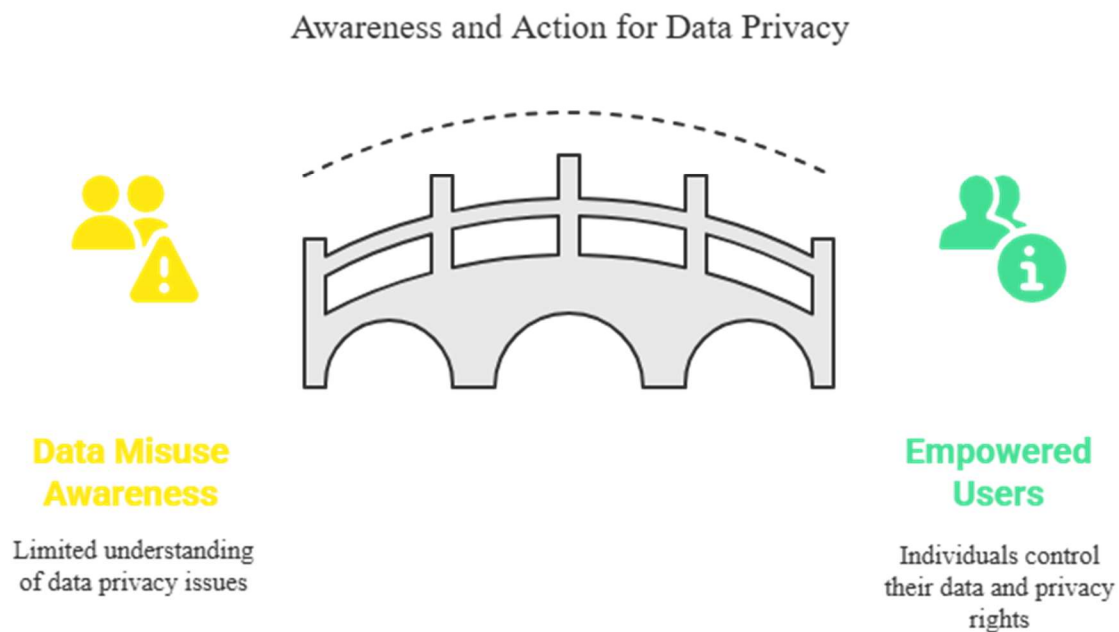
Figure 9

Facebook's Response to the Cambridge Analytica Scandal and Reactions from Other Companies

After the Facebook–Cambridge Analytica data scandal, Facebook CEO Mark Zuckerberg made several public apologies and statements to address the situation. In an interview on CNN, he called the scandal a serious "mistake" and a "breach of trust." He admitted that Facebook had not done enough to protect user data and promised that the company would make changes to prevent such issues in the future. Zuckerberg also reminded users that they have the right to access their personal data, and he explained that Facebook's focus had shifted from data sharing to stronger data protection. While Zuckerberg called it a breach of trust, some Facebook officials disagreed with the term "data breach," saying that users who took the personality quiz had consented to share their data—although many did not know how far their data would spread.

On March 25, 2018, Zuckerberg published a personal apology letter in major newspapers, expressing regret on behalf of Facebook. In April 2018, Facebook announced that it would follow the EU's General Data Protection Regulation (GDPR) not just in Europe, but globally, to give users more control over their data and privacy. As another step, Facebook also created a research group called Social Science One, aimed at increasing transparency and cooperation with the academic community in order to study the effects of social media on society.

Facebook's first financial report after the scandal showed that revenue had fallen slightly compared to the previous quarter. However, this was expected because the earlier quarter included the holiday season. Despite the controversy, the earnings for the first quarter of 2018 were still the highest ever for a first quarter, and the second highest overall in Facebook's history at that time.

Facebook's Response to the Cambridge Analytica Scandal

April 2018

Facebook adopts GDPR globally

March 25, 2018

Zuckerberg's personal apology letter published

Figure 10

Amazon and UniCredit (Italian Bank) response

Apart from Facebook, other major companies also took action in response to the data privacy scandal. Amazon, one of the world's biggest tech companies, said that they had already suspended Cambridge Analytica from using their Amazon Web Services (AWS) back in 2015, when they discovered that the company was collecting users' personal information without proper permission. This shows that Amazon had concerns about data misuse even before the scandal became public. Another company, UniCredit, which is a large Italian banking group, decided to stop advertising on Facebook in August 2018. This decision was made because they were worried about how Facebook was handling people's personal data. These actions by Amazon and UniCredit show that

companies around the world became more cautious about working with platforms that didn't protect user privacy properly.

Corporate Responses to Data Privacy Concerns

Amazon Suspends Cambridge Analytica

Amazon halted Cambridge Analytica's access to AWS in 2015 due to data misuse concerns.

UniCredit Stops Facebook Advertising

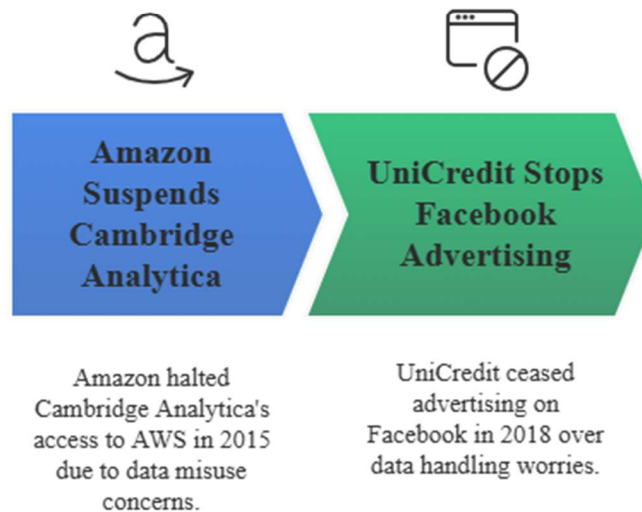UniCredit ceased advertising on Facebook in 2018 over data handling worries.

Figure 11

Conclusion:

The Facebook–Cambridge Analytica data scandal was a major event that changed how people think about privacy on the internet. It started when it was revealed that Cambridge Analytica, a political consulting firm, collected personal data from millions of Facebook users without their clear permission. This data was then used to influence elections, including the 2016 U.S. presidential election. Many users were shocked to learn that their information could be used in this way, especially when they never directly gave it to Cambridge Analytica.

As a result of the scandal, Facebook faced a lot of criticism from the public, the media, and governments. People lost trust in the platform, and a social media movement called #DeleteFacebook began, encouraging users to delete their accounts. Some famous people and companies also joined in. Although Facebook's user activity dropped for a while, the total number

of users continued to grow. The company also experienced a major drop in stock value but recovered financially within a few months.

To respond to the backlash, Mark Zuckerberg, the CEO of Facebook, apologized publicly and promised to make changes. Facebook improved its privacy settings, limited how apps could access user data, and applied stricter data protection rules globally. The company also launched new tools for users to control their information better. In addition, Facebook created Social Science One, a program to work with researchers and make social media more transparent.

Other companies, like Amazon and UniCredit, also reacted to the scandal. Amazon had already stopped Cambridge Analytica from using its cloud services years earlier. UniCredit, an Italian bank, decided to stop advertising on Facebook to show its concern about how the platform was managing user privacy. These actions showed that the scandal affected not just Facebook, but also how other businesses approach data security.

Overall, the Facebook–Cambridge Analytica scandal was a wake-up call for internet users, tech companies, and governments around the world. It highlighted the importance of data privacy, transparency, and user consent. Since then, many countries have started to introduce stronger laws to protect online data, and people have become more aware of how their information is collected and used online.

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