HS202

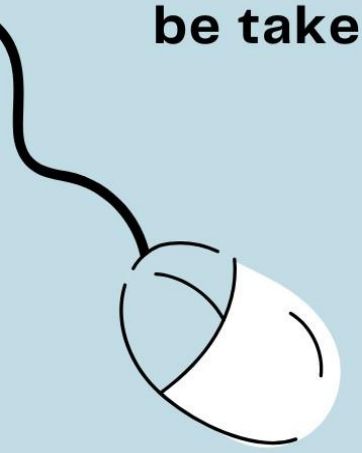
HUMAN GEOGRAPHY AND SOCIETAL NEEDS

Course Instructor: Dr.Kamal Kumar Choudhary

GROUP – 1

2022MMB1375-Dheeravath Sathwik
2022MMB1386-Mrinal Maurya
2022MMB1387-Paidi Satwika
2022MMB1392-Usham Adhitya Luwang

Table of Contents



ALGOFREE

Abstract/Summary: We are developing a project that can give control to users with respect to what the user wants to consume from the internet. It will challenge the Algorithms created to control the users on the internet. We have discussed and analyzed the problem along with its origin, identification and descriptions. We have also illustrated the detailed blueprint to make this project into reality by analyzing the technical requirements and constraints. Finally, we included the expected outcomes and the impact it will

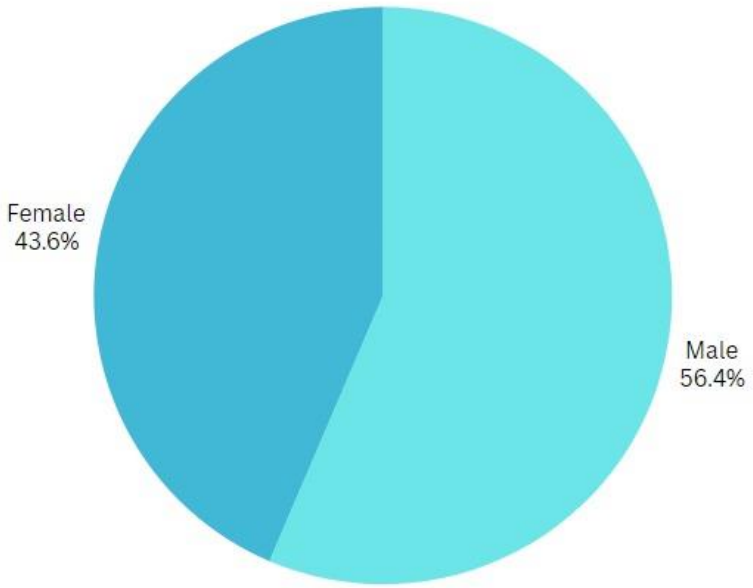
have on the people's lives. So, the details of the project are presented as follows.

Definition of the problem:

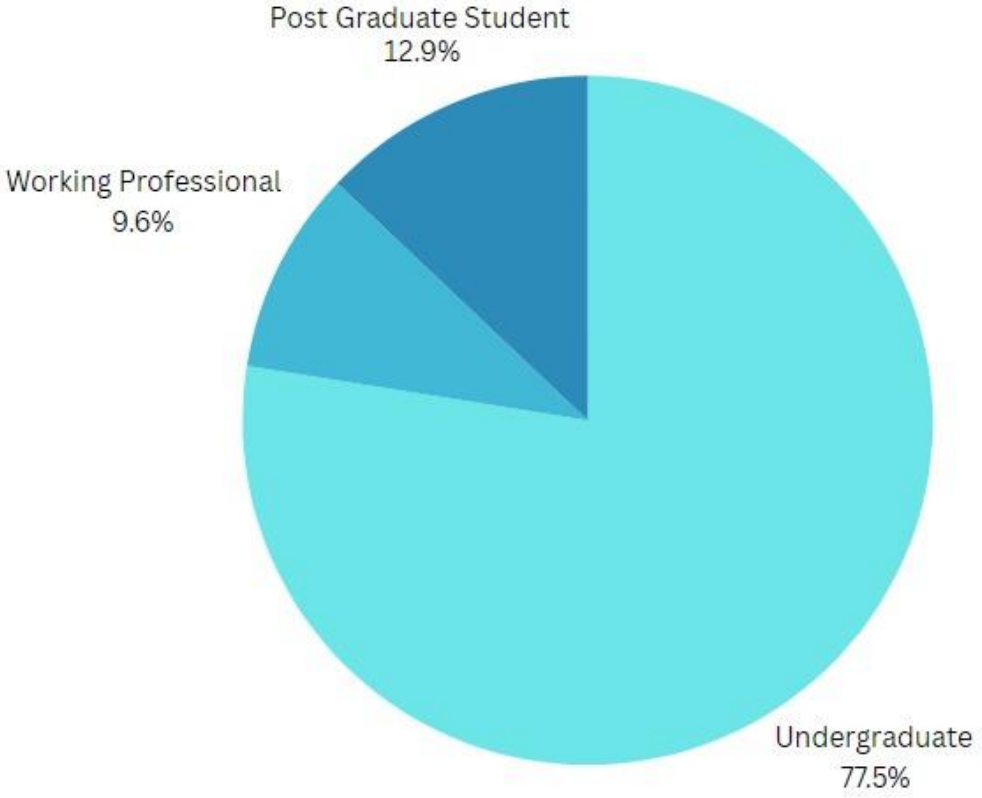
1. **Problem statement:** To develop a software that can filter out distractive contents while using the internet on our devices, especially social media.
2. **Origin of the problem:** With the advent of the internet and the limitless advancement of social media, users are being virtually controlled in what they consume from the internet. Users are being followed everywhere on the internet, on every website and platforms. A classic example is when you search for any

product, you will be constantly shown advertisements regarding the product on every online platform even when you do not need that product. It's more like you are being constantly forced to buy that product and change our own preferences. Another example is when using facebook or youtube, we are being shown distractive contents unrelated to what we prefer. Such recommendations are made only to profit the company, not caring about the user's time and preferences.

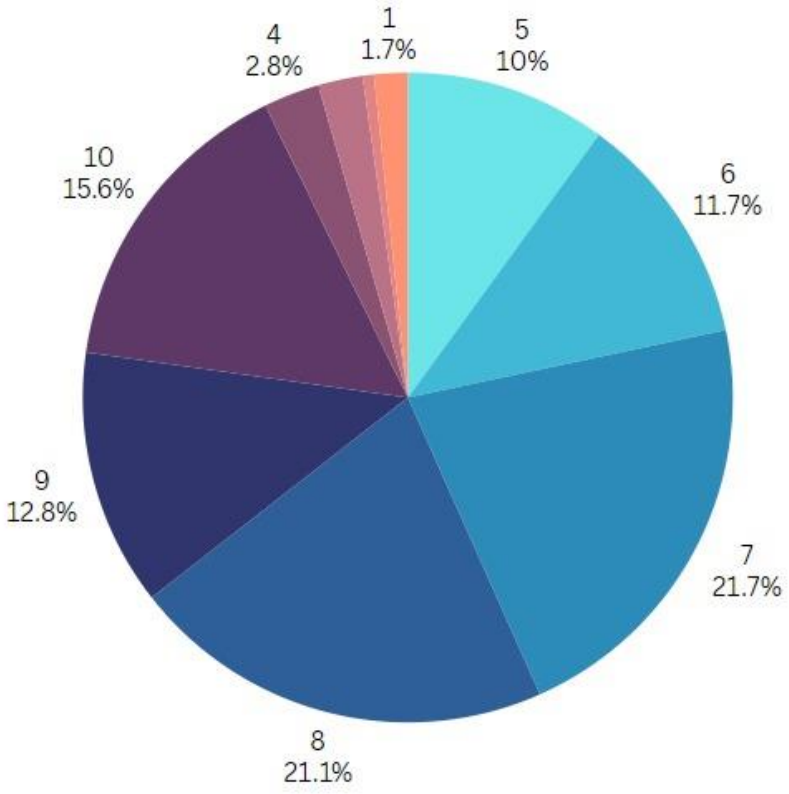
3. **Identification of the problem:** To identify the intensity of the problem and its extent on the people, we have conducted a short survey to collect their views and problems they face regarding this.
4. **Detailed description of the identified problem:**
   We have got 181 responses and the details are shown in the below pie charts.
   - **No.of Male and Female**



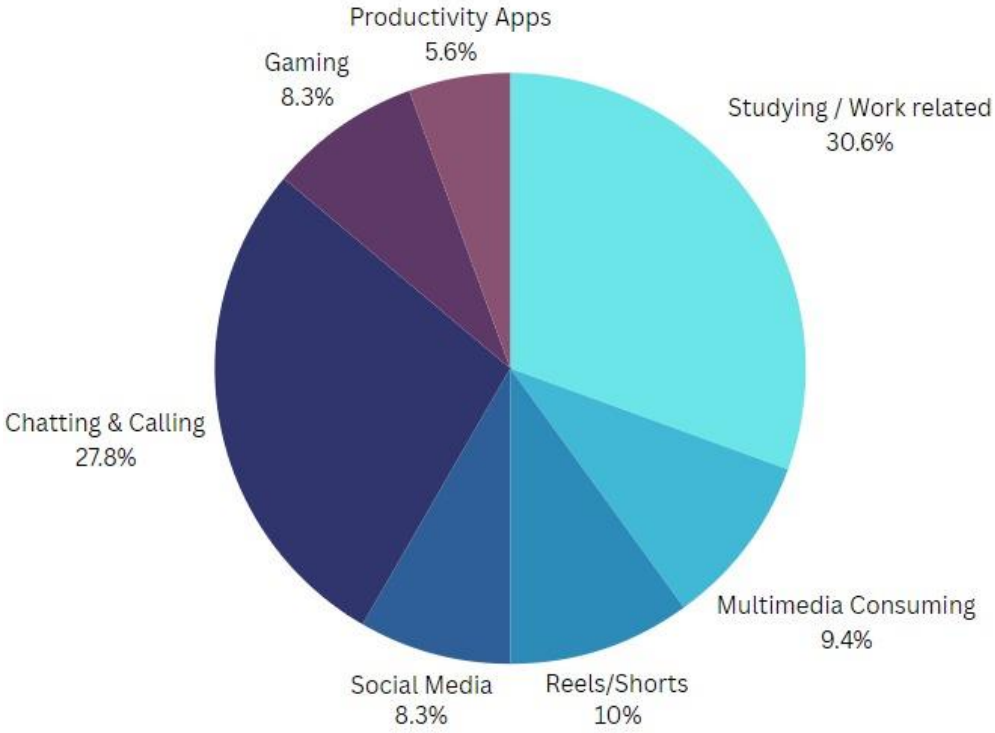
   - **Types of People**



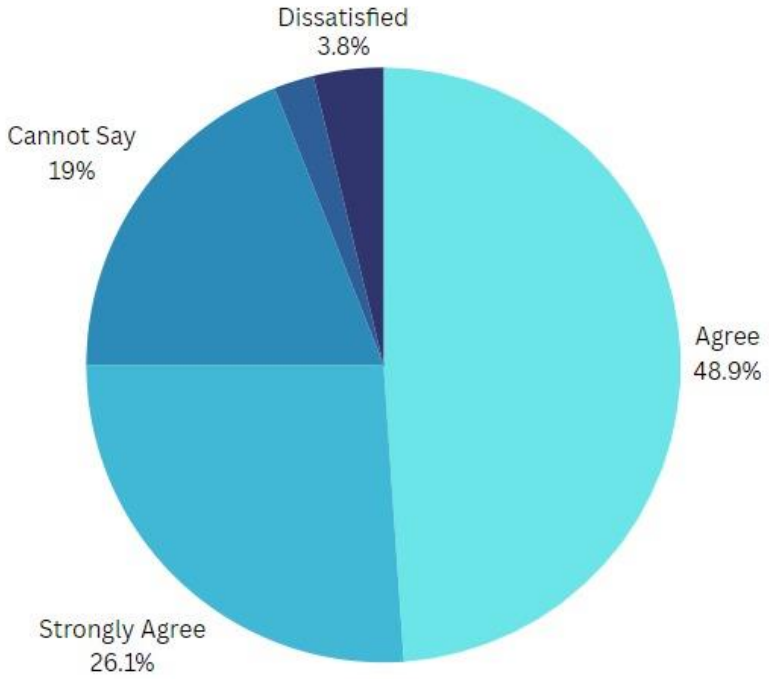
- **How many wants to use this technology**



- **Why do people use mobile**



- **Social media is controlling people**



5. **Current developments in the domain:**

- **Transparency**: Many public organizations and governments are putting pressure on social media companies to be more transparent about how their recommendation algorithms work.

ellphone addiction a bane for kids

WHAT PARENTS THINK

My son, 16, and daughter, 12, are allowed to play mobile games for 20 mins. They play lawn tennis. My daughter learns guitar. I hold random checks to ensure they don't misuse phones
–Maulmi Pandey, IT project manager

I have two sons: 12 and 7 years old. I allow them half an hour to play the sole game on my phone. It helps them create words, improves vocabulary. We push them to play outside
–Megha Jain, home-maker

My daughter, 12, and son, 8, use the tablet twice per week for a limited time. We play ludo, carom and tennis with them to keep them engage in sports and avoid using mobile phone
–Pankaj Nahata, chartered accountant

My son is 9 and used to spend much time on the tablet. Worried, I limited its usage and also began playing indoor games with him. It helps us spend quality time with him.
–Ankur Patel, accountant

WHAT SCHOOL COUNSELLORS THINK

Parents must limit phone use. They need to draw rules that no mobiles be used during lunch/dinner, travelling or when the family is communicating
–Richa Bhasin, Zydus school counsellor

We ask students to spend 'me-time' so that they develop relationship with themselves. They have to be made aware of the toll it takes on their physical, mental health
–Smita Ghosh, Anand Niketan counsellor

ALGOFREE

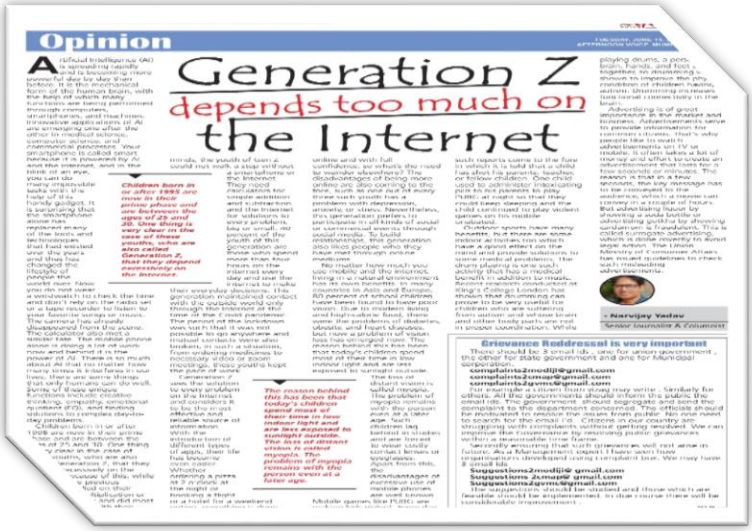
This could lead to regulations requiring them to disclose the factors influencing content recommendations.

- **Explainable AI:** Researchers are developing Explainable AI (XAI) techniques that could help users understand why specific content is recommended to them. This could empower users to make more informed choices about their social media experience.
- Decentralized social media platforms are being developed that aim to give users more control over their data and feed recommendations. These platforms often utilize blockchain technology and rely less on centralized algorithms. However, they are still in their early stages of development and have a smaller user base compared to established social media giants.

- In certain streaming platforms like Netflix and Jio Cinema, there are algorithms that suggest user preferred contents. But there is the issue of commercialisation and forced engagement.

6.Need and significance of resolving the problem: This problem needs to be addressed as soon as possible to give freedom to users. Everyone deserves to be free in what they choose in life. Some companies and cooperates should not co... and commercialize the user's data.

ALGOFREE



Opinion

Generation Z depends too much on the Internet

If this project becomes practical, users will have more freedom and will get more privacy. Users will not be tracked everywhere like some robots. Also, this can reduce the engagement on unproductive contents, ultimately reducing phone addiction.

<u>Aims/Objectives/Goals pertaining to minimizing or removing the problem:</u> We will filter out those contents which are not related to the requirements of the user including all unrelated recommendations. The user will be fed with only contents which the user himself has chosen to be shown. Any form of distractions will be filtered out before it is being shown on the screen. Also, forced engagement blindly will be reduced.

Tools and techniques perceived to be effective for resolving the issue:

- **Machine Learning, Deep Learning and Artificial Intelligence:** We will use AI/ML/DL algorithms to train a model which can identify the unrelated contents and then filter them out. The model will allow only related recommendations to pass through.
- **Cloud servers**: We will use cloud servers as a middle man between the actual server and the user device. We can integrate the models and incoming data to carry out the filtration process.
- **Accessibility settings:** The user's accessibility settings will be modified to allow the incoming data from the original server to be sent to our cloud server before it reaches the user.
- **Databases:** We will use already existing databases to feed into our algorithms and train the model. Such databases must have enormous amounts of data with large variations.
- **Encryption:** The device will have to give permission so that any encrypted data can be decoded when it reaches the cloud server.

Detailed Work Plan/Technological interventions:

We shall discuss our technology by first understanding how the internet contents are being accessed by a user. For this, we are taking an example of how the famous social media platform 'Instagram' interacts data with the user. Instagram uses the Content Delivery Network(CDN) system, which is explained as follows:

- Instagram has a main Server where all the original contents (images,videos, texts,etc) reside. This server is typically located in a single data center.
- For content distribution, the user configures the CDN to fetch and store copies of the user's content on the network of servers, called edge servers, located in various geographical locations around the world.
- When a user accesses Instagram from their device, the device initiates a request for the content.
- The user's device queries the Domain Name System(DNS) to translate the website's domain name into an IP address. The DNS might be integrated with the CDN's intelligent routing system. This system considers factors like the user's location, network congestion, and server availability to determine the optimal edge server to deliver the content from.
- If the requested content is available on the nearest edge server, the server locates the requested content and prepares a response packet containing the data.
- The server sends the data packet back to the user's device. This packet is broken down into smaller chunks for efficient transmission across the internet.Each chunk typically contains headers with information about the data (e.g., source, destination, size) and the actual content itself.
- The device receives the data chunks and reassembles them in the correct order based on the header information.Error

correction mechanisms might be employed to ensure the data arrives without corruption.

- The device does not directly interpret the raw data.This interpretation process is then taken over by Instagram.The app identifies the format of the image or video data (e.g., JPEG, MP4) and uses appropriate codecs (software programs) to decode it. These codecs convert the compressed data back into a format your device's display can understand.For text data,the app parses the caption text and user profile information, handling character encoding and formatting as needed.The app also interprets data like likes, comments, and timestamps, displaying them in a user-friendly format within the post.
- Based on the interpreted data, the app builds the visual representation of the post. This includes displaying the decoded image or video,rendering the caption text with appropriate formatting,showing user profile pictures and usernames,presenting likes, comments, and timestamps in a clear and visually appealing way.

So, this is the normal process of data transfer between the user and Instagram. As we know this data is already manipulated by the Instagram algorithm, we want to modify and filter this data before it is being displayed to the user. For this approach, we will intervene in the following ways:

- As soon as the user's device receives the chunks of data from the server, the device will send this data directly to the Cloud server instead of passing it to the Instagram app.
- The cloud server which is already integrated with the AI/ML/DL models will receive the incoming data.
- The data will be decoded using softwares like that in Instagram.
- The decoded data will be fed as input data for the AI/ML/DL algorithms, which will filter the data.
- The filtered data will then be packaged back into chunks of data for transmission.
- These data will be sent back to the device. And the usual interpretation process by the Instagram app will carry on.

In this way, Instagram will have no idea that the contents they originally sent have been filtered. It will just receive this filtered data and display it to the user.

In short, the user will set some topics or environments which he/she prefers. These preferences will then be recognised by the AI/ML/DL models. Accordingly, the model will set its own parameters to meet the requirements of the user and then filter out the data which is unrelated to the preferences of the user. These filtered data will be shown to the user by following the above process. Overall, the user gets what he/she prefers to see and distractions and commercialisation, tracking contents, engagement contents are kept far away from the user.

Novelty/Innovation of the proposed interventions:

The project highlights a new idea of processing raw data by disturbing the normal data flow (of course by taking user's permission) using Cloud servers and AI/ML/DL algorithms. This has never been done before in any platform because in others, everything is integrated in the same platform which leads to

monopoly of the same platform. But if this model is put into effect, one platform cannot monopoly the entire system.

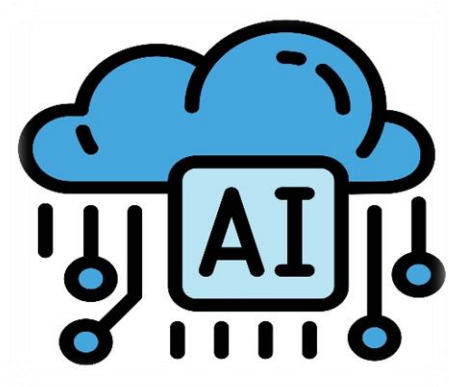
Yes, there are already models that can recommend according to the user preferences but the companies and platforms providing this technology are hunting for profits and so commercialisation, forced engagement and ads promotion still remain a challenge. But our new technology defies all of this because our main purpose is to filter all these distractions.

Moreover, our technology is free of any influence from the companies and online hegemony because we are putting the filter right before the data reaches the user. However bad and polarized information are sent to the user, still we can defend ourselves.

Approaches that can be taken to implement the intervention plans:

- First is the development of a high-tech Cloud server which will provide the entire platform.
- Then we have to collect an enormous amount of data related to different specific fields. Then create a database for this.
- These data will be fed into a Model trained by various AI/ML/DL algorithms.
- Selection of proper algorithms that will match the preferences of the choice of the user.
- A data storage platform to manage the incoming enormous raw data.
- Integration of these models and data storages into the cloud server.

- permission from the user to allow reading encrypted data. This can be done by changing the Accessibility settings.



Possible constraints and barriers to implementation, design issues:

Developing an AI model: As AI models are based on enormous data, it will be a hard challenge to collect this data and feed into the model. If the data is not authentic, the model will not be efficient and the filtration process will be affected to a large extent. This has been termed as “Garbage In Garbage Out’.

Slow in action: As the filtration process involves diverting the incoming data and then processing, there will be time gaps(though in milliseconds). This can slow down the user’s interaction with the internet. The user might take time to fetch data from the original server.

Ban in Play Store or App Store: The project will have a big impact on the commercialisation and the advertising business. Taking this account, Play Store/ App Store will not allow such technology because it will affect most of the online platforms earning profits.

3rd party apps: The technology will have to be made available through 3rd party apps. This means that the technology will be restricted to some groups only.

Less promotion: As the technology directly challenges the profit making policy of many big cooperates and organizations, it is quite obvious that this technology will remain hidden in the dark, not known to the masses.

Not economical: Since this technology will be limited to a few population, it will be very difficult to recover back the investments made to develop the technology. We will be in serious financial trouble until a considerable population starts using the technology.

Hard to take Investments: It will be hard to convince the investors to invest in such a technology which will challenge many other tech giants.

Misuse by users: Users can misuse this technology to recommend unethical contents. The user can misuse it to destroy his own online feed environment.

Trap in a bubble: The user can be trapped in his own bubble of comfort zone. This is because the user will be unaware of what is happening beyond his preferences. He will be just like hiding under a stone. This can distance himself from social life.

We cannot set user preferences in all the topics we want because for each unique preference demanded by the user, a new model has t be trained along with a huge database. So, only a limited number of models for some common preferences will be practical and available.

Expertise available with each student to contribute to the development of the intervention:

1. **Data collection:-** Students can help in collecting the enormous database which will be required to train the model and algorithms.
2. **Model training:-** Students can start with a small database and try out different models and algorithms that can act as templates for a bigger project.

3. **Open source:-** Students can contribute as open source in the development of a Cloud Server.

Expected Outcomes:

If this project is successful, it will have a huge impact on the digital platform and the normal lives of the general public.

- Many of the online distractive contents and engagement related feed recommendations will be minimized. User specific contents free from commercialization will be made available to the users.
- Users will be able to focus on their work. Their concentration will be maximized. All sorts of distractions will be minimized.
- Aspirants who are preparing for exams can focus on their specific domains. It will bring out the best of the internet resources.
- Many companies whose sole business depend on digital marketing will be greatly affected. Their marketing strategies will see huge changes.
- Useless engagement in violent and fake news will be minimized. This can lead to a better social stability.

Suggested plan of action for utilization of outcome expected from work:

The project can be used in various domains which include education, child character molding, restructuring social stereotypes, controlling social violence and hatred, etc among many.

- **Online education**: This technology can be used as an online tool for students in online education. The students will have to select their domain of study and set it as their preference. After that the user will have to allow data manipulation in the accessibility settings. Then, the user will receive only preferred content when he uses the internet and youtube videos.
- **Molding character**: Nowadays, even small children have access to the internet. We can use this technology productively by

changing the settings to stream only compassionate, kind and humanity related contents for the children. This way the child will be surrounded by a very organic and positive environment.

- **Reducing social hatred:** Many social media contents are polarized and as such many big companies intentionally try to promote these, for instance twitter(now X) is criticized time and again that it promotes social violence. But our technology will be free from such influences because the filtration process is right before reaching the user.
- **Getting more privacy:** This technology will ensure that users are not being under surveillance of anyone. They can choose what they want and focus on it completely.

Conclusion:

In today's information age, the internet presents a vast ocean of data, both valuable and undesirable. This project explored the design of a system to filter unwanted content from this ever-growing stream. We discussed various approaches, including keyword blacklists, machine learning models trained on user preferences, and collaborative filtering techniques.

ALGOFREE

While complete elimination of unwanted content is likely an impossible dream, significant strides can be made in creating a more personalized and secure online experience. The key lies in striking a balance between user control and access to a diverse range of information. Transparency in how filtering algorithms work and the ability for users to customize their experience are crucial aspects of this balance.

However, content filtering is not a silver bullet. Critical thinking skills and media literacy remain essential tools for navigating the online world. Understanding the potential biases inherent in filtering algorithms and being aware of the limitations of automated systems are equally important.

The quest for a clean and safe online environment is an ongoing journey. This project has offered a glimpse into the potential solutions and the challenges that lie ahead. As technology continues

to evolve, so too must our efforts to create a responsible and empowering online experience for all users.

Contribution of each student:

1. Usham Adhitya Luwang (2022mmb1392):

- **Idea development**
- **Content creation and drafting**
- **Data analysis**
- **Data presentation**
- **Research work**

2. Paidi Satwika (2022mmb1387)

- **Conducting survey**
- **Content designing**
- **Research**

3.Dheeravath Sathwik (2022mmb1375)

- **Conducting survey**
- **Content designing**

4. Mrinal Maurya (2022mmb1386)

- **Survey development**
- **Research**