***RECOMENDATION SYSTEM***

***There are three primary types of recommender systems.***

***1.Content-based filtering uses similarities in products, services, or content features, as well as information accumulated about the user to make recommendations.***

***2.Collaborative filtering relies on the preferences of similar users to offer recommendations to a particular user.***

***3.Hybrid recommender systems combine two or more recommender strategies, using the advantages of each in different ways to make recommendations***.

***1.Content-based filtering: -***

>> ***Content-based filtering is a type of recommender system that attempts to guess what a user may like based on that user’s activity.***

***>> Content-based filtering makes recommendations by using keywords and attributes assigned to objects in a database (e.g., items in an online marketplace) and matching them to a user profile. The user profile is created based on data derived from a user’s actions, such as purchases, ratings (likes and dislikes), downloads, items searched for on a website and/or placed in a cart, and clicks on product links.***

***Assigning attributes***

***Content-based filtering relies on assigning attributes to database objects so the algorithm knows something about each object. These attributes depend primarily on the products, services, or content you’re recommending.***

***Building a user profile***

***User profiles are another element crucial to content-based recommender systems. Profiles include the database objects the user has interacted with—purchased, browsed, read, watched, or listened to—as well as their assigned attributes.***

***Attributes appearing across multiple objects are weighted more heavily than those that show up less often. This helps establish a degree of importance because not all of an object’s attributes are equal to the user. User feedback is also critical when weighting items, which is why websites that provide recommendations are continually asking you to rate products, services, or content.***

***Eg:- Here’s an example: Let’s say you’ve listened to Taylor Swift’s "The Last Time," Shakira’s "Can't Remember to Forget You," and “Me, Myself and I” by Beyoncé. A recommender system might recognize that you like female pop artists and breakup songs. You could expect to receive recommendations for more breakup songs by these and other female pop artists, such as Miley Cyrus’s “Slide Away.”***

***The recommender system may also suggest different types of songs by Miley Cyrus because you appear to like female pop artists. Still, since you didn’t choose to listen to this artist or songs unassociated with breakups before, these selections would receive a lower assigned score.***

***Benefits of content-based filtering: -***

***> No data from other users is required to start making recommendations***

***> Recommendations are highly relevant to the user***

***> Content-based filtering systems are generally easier to create. The data science behind a content-based filtering system is relatively straightforward. The real work in content-based filtering is assigning the attributes.***

***> You avoid the “cold start” problem.***

***Cons: -***

***> There’s a lack of novelty and diversity.***

***> Scalability is a challenge. Every time a new product or service or new content is added, its attributes must be defined and tagged.***

***> Attributes may be incorrect or inconsistent. Content-based recommendations are only as good as the subject-matter experts tagging items. Potentially millions of items may need attributes assigned, and since attributes can be subjective, many may be incorrectly tagged.***

***SKILLS THAT I NEED TO WORK ON: -***

***>Python and Scala***

***>libraries and frameworks such as Hadoop/Spark MLlib, LensKit, and Neo4.***