Project Proposal

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- **Title: Project Proposal Ideas**

  - *Music Recommendation System "Moody"*
  - *Health care chat-bot "Life-line"*

Music Recommendation System: MOODY

- **Problem being addressed:**

People typically enjoy listening to music that matches their mood. However, music recommendation algorithms generally consider the user's current artist, album, or genre that they listen to and therefore recommend music according to it. We want to cater a solution for when they do not want to listen to their usual music and want to vibe according to their mood. Thus we came up with a solution to that issue.

- **Solution:**

Our music recommendation system (app) focuses its recommendations on the user's mood (in addition to the artist and genre they usually listen to). For example, the user listens to "dance" records more often, so our recommendation system would suggest uplifting or more dance tunes from different artists. Consequently, their moods are boosted, making them love the music more. Additionally, this helps the user experiment with different genres of music based on the type of mood they are in and allows them to expand their musical preferences.

- **Resources to be used (libraries, datasets, etc)**

We are going to be using the Numpy library, Scikit learn library and Pandas. And Pygame for the front end.

- **Core part to be developed by yourself (Here you will describe the core AI part on your project that you will develop yourself rather than using some existing library).**

Utilizing the recommendation system algorithm that we studied in class is our strategy for the core component of the system. We have categorized songs into these categories based on mood using the Spotify dataset.

['valence', 'old', 'acousticness', 'danceability', 'duration_ms', 'energy', 'explicit', 'instrumentalness', 'key', 'liveness', 'loudness', 'mode', 'popularity', 'speechiness', 'tempo']

We can cluster the songs using K-means in order to understand how to build a better recommendation system.
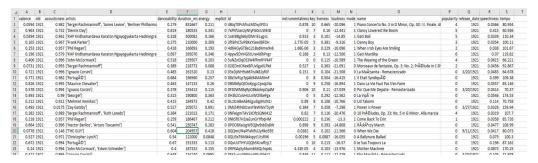
The recommendation algorithm would go about doing something like this:

- o Compute the average vector of the audio and metadata features (the mood list) for each song the user has listened to.
- o Find the n-closest data points in the dataset (excluding the points from the songs in the user's listening history) to this average vector.
- o Take these n points and recommend the songs corresponding to them

This algorithm follows a common approach that is used in content-based recommender systems.

- **The dataset we are using is from Kaggle.**

   https://www.kaggle.com/code/vatsalmavani/music-recommendation-system-using-spotify-dataset/data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	valence	old	acousticness	artists	danceability	duration_ms	energy	explicit	id	instrumentalness	key	liveness	loudness	mode	name	popularity	release_date	speechiness	tempo	
2	0.0594	1921	0.982	['Sergei Rachmaninoff', 'James Levine', 'Berliner Philharmo	0.279	831667	0.211	0	4BJqTOPrAfnxzMOxytFOIz	0.878	10	0.665	-20.096	1	Piano Concerto No. 3 in D Minor, Op. 30: III. Finale. Al	4	1921	0.0366	80.954	
3		0.963	1921	0.732	['Dennis Day']	0.819	180533	0.341	0	7xPhfUan2yNtyFG0cUWkt8	0	7	0.16	-12.441	1	Clancy Lowered the Boom	5	1921	0.415	60.936
4	0.0394	1921	0.961	['KHP Kridhamardawa Karaton Ngayogyakarta Hadiningra	0.328	500062	0.166	0	1o6I8BgIA6yIDMriELygv1	0.913	3	0.101	-14.85	1	Gati Bali	5	1921	0.0339	110.34	
5	0.165	1921	0.967	['Frank Parker']	0.275	210000	0.309	0	3ftBPnC5vPBKxY5ee08FDH	2.77E-05	5	0.381	-9.316	1	Danny Boy	3	1921	0.0354	100.11	
6	0.253	1921	0.957	['Phil Regan']	0.418	166693	0.193	0	4d6HGyGT8e121BsdKmw9v6	1.68E-06	3	0.229	-10.096	1	When Irish Eyes Are Smiling	2	1921	0.038	101.67	
7	0.196	1921	0.579	['KHP Kridhamardawa Karaton Ngayogyakarta Hadiningra	0.697	395076	0.346	0	4pyw9DVHGStUre4J6hPngr	0.168	2	0.13	-12.506	1	Gati Mardika	6	1921	0.07	119.82	
8	0.406	1921	0.996	['John McCormack']	0.518	159507	0.203	0	5uNZnEIqOS3W4fRmRYPk4T	0	0	0.115	-10.589	1	The Wearing of the Green	4	1921	0.0615	66.221	
9	0.0731	1921	0.993	['Sergei Rachmaninoff']	0.389	218773	0.088	0	02GOntOXexBFUvSgaXLPkd	0.527	1	0.363	-21.091	0	Morceaux de fantaisie, Op. 3: No. 2, PrÃ©lude in C-Sh	2	1921	0.0456	92.867	
10	0.721	1921	0.996	['Ignacio Corsini']	0.485	161520	0.13	0	05xDjWHvbub67nJkB2yfGf	0.151	5	0.104	-21.508	0	La MaÃ±anita - Remasterizado	0	3/20/1921	0.0483	64.678	
11	0.771	1921	0.982	['PortugÃ©']	0.684	196560	0.257	0	08zfivRLp7pjAb94MA8lmF	0	8	0.504	-16.415	1	Il Etait SyndiquÃ©	0	1921	0.399	109.38	
12	0.826	1921	0.995	['Maurice Chevalier']	0.463	147133	0.26	0	08MkRpQzDoKjcgzCpnqLNa	0	9	0.258	-16.894	1	Dans La Vie Faut Pas S'en Faire	0	1921	0.0557	85.146	
13	0.578	1921	0.994	['Ignacio Corsini']	0.378	155413	0.115	0	0F3OWM8qRpO8kdolepZqdM	0.906	10	0.11	-27.039	0	Por Que Me Dejaste - Remasterizado	0	3/20/1921	0.0414	70.37	
14	0.493	1921	0.99	['Georgel']	0.315	190800	0.363	0	0H3k2CvJvHULnWChlbeFgx	0	5	0.292	-12.562	0	La VipÃ¨re	0	1921	0.0546	174.53	
15	0.212	1921	0.912	['Mehmet Kemiksiz']	0.415	184973	0.42	0	0LcXzABeA84EgudqpNUN1l	0.89	8	0.108	-10.766	0	Ud Taksimi	0	1921	0.114	70.758	
16	0.493	1921	0.0175	['Zay Gatsby']	0.527	205072	0.691	0	0MlZ4hh60zwsYleWWxT5yW	0.384	7	0.358	-7.298	1	Power Is Power	0	3/27/1921	0.0326	159.94	
17	0.282	1921	0.989	['Sergei Rachmaninoff', 'Ruth Laredo']	0.384	221013	0.171	0	0NFeJgmTAV1kDfzSQNK41Z	0.82	7	0.116	-20.476	0	10 PrÃ©ludes, Op. 23: No. 5 in G Minor. Alla marcia	4	1921	0.0319	107.7	
18	0.218	1921	0.957	['Phil Regan']	0.259	186467	0.212	0	0Nk5f07H3JaEunGrYfbqHM	0.000222	2	0.236	-13.3	1	Come Back To Erin	1	1921	0.0358	85.726	
19	0.664	1921	0.996	['Hector Berlioz', 'Arturo Toscanini']	0.541	250747	0.283	0	0POO8XaUgWSQjbv9sbDy8W	0.898	9	0.393	-14.808	1	RÃ¡kÃ³czy March	0	1921	0.0477	108.99	
20	0.0778	1921	0.148	['THE GUY']	0.604	204957	0.418	1	0QQmUf4aPFaN9U2yRko595	0.0382	4	0.102	-11.566	0	When We Die	0	9/11/1921	0.0417	80.073	
21	0.527	1921	0.971	['Christopher Lynch']	0.54	122000	0.0848	0	0QU5xT6Mik4vpyt1itsRXK	0.00196	5	0.0887	-16.055	0	A Ballynure Ballad	0	1921	0.075	100.3	
22	0.672	1921	0.994	['PortugÃ©']	0.67	191333	0.113	0	0QyUUTHYUQQhSXLwffzjL7	0	10	0.213	-16.57	0	Je Suis Toujours La	0	1921	0.196	87.162	
23	0.24	1921	0.994	['John McCormack', 'Edwin Schneider']	0.4	187333	0.155	0	0RPKAq5yhbom6hXQz5qo6L	4.33E-05	4	0.103	-13.976	1	Mother Machree	0	1921	0.0873	170.25	
24	0.422	1921	0.995	['Ignacio Corsini']	0.618	154340	0.0985	0	05K1umtAR6NungDvcGh4r2	0.846	11	0.112	-21.429	1	Flor Marchita - Remasterizado	0	3/20/1921	0.105	71.978	

Health Care chat-bot: Life Line

- **Problem being addressed:**

   Even for a small issue we need to consult a doctor by taking an appointment which requires time and cost. Sometimes there is an emergency, in this fast paced world we need quick pre diagnosis to know if the situation is critical enough to even go to the doctor. Thus, our AI app is the solution to that issue.

- **Solution:**

   Our healthcare app predicts the disease or illness for the user when they input the symptoms they are facing. This helps in quick diagnose of the illness and not only saves the user's time but also act as a doctor for the early diagnosis of a disease to ensure the treatment can take place on time and lives can be saved It is beneficial for doctors as it provides them a data base and helps them outline even minor issues that may not be as minor as they seem providing them a holistic view on things or guiding them to recommend their patients to some specific specialist.

- **Resources to be used (libraries, datasets, etc)**

   We are going to be using the Numpy library, Scikit learn library and Pandas and Pygame for the front end.

- **Core part to be developed by yourself (Here you will describe the core AI part on your project that you will develop yourself rather than using some existing library).**

   Our approach for the core part implementation is going to involve classification algorithms that we have learned in our course.

Gathering the Data: Data preparation is the primary step for any machine learning problem. We will be using a dataset from Kaggle for this problem. This dataset consists of four CSV files for training and for testing.

Cleaning the Data: Cleaning is the most important step in a machine learning project. The quality of our data determines the quality of our machine learning model. So it is always necessary to clean the data before feeding it to the model for training.

Model Building: After gathering and cleaning the data, the data is ready and can be used to train a machine learning model. We will be using this cleaned data to train the Support Vector Classifier, Naive Bayes Classifier algorithm, and Random Forest Classifier. We will be using a confusion matrix to determine the quality of the models.

Inference: After training the three models we will be predicting the disease for the input symptoms by combining the predictions of all three models. This makes our overall prediction more robust and accurate.

- **The dataset we are using is from Kaggle.**
  https://www.kaggle.com/code/ronikdedhia/disease-sympton-prediction/data

Disease	Symptom_1	Symptom_2	Symptom_3	Symptom_4	Symptom_5	Symptom_6	Symptom_7	Symptom_8
Fungal infection	itching	skin_rash	nodal_skin_eruptions	dischromic _patches				
Fungal infection	skin_rash	nodal_skin_eruptions	dischromic _patches					
Fungal infection	itching	nodal_skin_eruptions	dischromic _patches					
Fungal infection	itching	skin_rash	dischromic _patches					
Fungal infection	itching	skin_rash	nodal_skin_eruptions					
Fungal infection	skin_rash	nodal_skin_eruptions	dischromic _patches					
Fungal infection	itching	nodal_skin_eruptions	dischromic _patches					
Fungal infection	itching	skin_rash	dischromic _patches					
Fungal infection	itching	skin_rash	nodal_skin_eruptions					
Fungal infection	itching	skin_rash	nodal_skin_eruptions	dischromic _patches				
Allergy	continuous_sneezing	shivering	chills	watering_from_eyes				
Allergy	shivering	chills	watering_from_eyes					
Allergy	continuous_sneezing	chills	watering_from_eyes					
Allergy	continuous_sneezing	shivering	watering_from_eyes					
Allergy	continuous_sneezing	shivering	chills					
Allergy	shivering	chills	watering_from_eyes					
Allergy	continuous_sneezing	chills	watering_from_eyes					
Allergy	continuous_sneezing	shivering	watering_from_eyes					
Allergy	continuous_sneezing	shivering	chills					
Allergy	continuous_sneezing	shivering	chills	watering_from_eyes				
GERD	stomach_pain	acidity	ulcers_on_tongue	vomiting	cough	chest_pain		
GERD	stomach_pain	ulcers_on_tongue	vomiting	cough	chest_pain			

Disease	Description
Drug Reaction	An adverse drug reaction (ADR) is an injury caused by taking medication. ADRs may occur following a single dose or prolonged administration of a drug or result from the combination...
Malaria	An infectious disease caused by protozoan parasites from the Plasmodium family that can be transmitted by the bite of the Anopheles mosquito or by a contaminated needle or tran...
Allergy	An allergy is an immune system response to a foreign substance that's not typically harmful to your body.They can include certain foods, pollen, or pet dander. Your immune system...
Hypothyroidism	Hypothyroidism, also called underactive thyroid or low thyroid, is a disorder of the endocrine system in which the thyroid gland does not produce enough thyroid hormone.
Psoriasis	Psoriasis is a common skin disorder that forms thick, red, bumpy patches covered with silvery scales. They can pop up anywhere, but most appear on the scalp, elbows, knees, and lo...
GERD	Gastroesophageal reflux disease, or GERD, is a digestive disorder that affects the lower esophageal sphincter (LES), the ring of muscle between the esophagus and stomach. Many pe...
Chronic cholestasis	Chronic cholestatic diseases, whether occurring in infancy, childhood or adulthood, are characterized by defective bile acid transport from the liver to the intestine, which is caused...
hepatitis A	Hepatitis A is a highly contagious liver infection caused by the hepatitis A virus. The virus is one of several types of hepatitis viruses that cause inflammation and affect your liver's ab...
Osteoarthristis	Osteoarthritis is the most common form of arthritis, affecting millions of people worldwide. It occurs when the protective cartilage that cushions the ends of your bones wears dow...
(vertigo) Paroymsal Positional V	Benign paroxysmal positional vertigo (BPPV) is one of the most common causes of vertigo â€" the sudden sensation that you're spinning or that the inside of your head is spinning. B...
Hypoglycemia	Hypoglycemia is a condition in which your blood sugar (glucose) level is lower than normal. Glucose is your body's main energy source. Hypoglycemia is often related to diabetes tre...
Acne	Acne vulgaris is the formation of comedones, papules, pustules, nodules, and/or cysts as a result of obstruction and inflammation of pilosebaceous units (hair follicles and their acco...
Diabetes	Diabetes is a disease that occurs when your blood glucose, also called blood sugar, is too high. Blood glucose is your main source of energy and comes from the food you eat. Insulin,...
Impetigo	Impetigo (im-puh-TIE-go) is a common and highly contagious skin infection that mainly affects infants and children. Impetigo usually appears as red sores on the face, especially arou...
Hypertension	Hypertension (HTN or HT), also known as high blood pressure (HBP), is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. High blood ...
Peptic ulcer diseae	Peptic ulcer disease (PUD) is a break in the inner lining of the stomach, the first part of the small intestine, or sometimes the lower esophagus. An ulcer in the stomach is called a gas...
Dimorphic hemorrhoids(piles)	Hemorrhoids, also spelled haemorrhoids, are vascular structures in the anal canal. In their ... Other names, Haemorrhoids, piles, hemorrhoidal disease .
Common Cold	The common cold is a viral infection of your nose and throat (upper respiratory tract). It's usually harmless, although it might not feel that way. Many types of viruses can cause a com...
Chicken pox	Chickenpox is a highly contagious disease caused by the varicella-zoster virus (VZV). It can cause an itchy, blister-like rash. The rash first appears on the chest, back, and face, and the...
Cervical spondylosis	Cervical spondylosis is a general term for age-related wear and tear affecting the spinal disks in your neck. As the disks dehydrate and shrink, signs of osteoarthritis develop, includin...
Hyperthyroidism	Hyperthyroidism (overactive thyroid) occurs when your thyroid gland produces too much of the hormone thyroxine. Hyperthyroidism can accelerate your body's metabolism, causin...
Urinary tract infection	Urinary tract infection: An infection of the kidney, ureter, bladder, or urethra. Abbreviated UTI. Not everyone with a UTI has symptoms, but common symptoms include a frequent ur...

Disease	Precaution_1	Precaution_2	Precaution_3	Precaution_4
Drug Reaction	stop irritation	consult nearest hospital	stop taking drug	follow up
Malaria	Consult nearest hospital	avoid oily food	avoid non veg food	keep mosquitos out
Allergy	apply calamine	cover area with bandage		use ice to compress itching
Hypothyroidism	reduce stress	exercise	eat healthy	get proper sleep
Psoriasis	wash hands with warm soapy water	stop bleeding using pressure	consult doctor	salt baths
GERD	avoid fatty spicy food	avoid lying down after eating	maintain healthy weight	exercise
Chronic cholestasis	cold baths	anti itch medicine	consult doctor	eat healthy
hepatitis A	Consult nearest hospital	wash hands through	avoid fatty spicy food	medication
Osteoarthristis	acetaminophen	consult nearest hospital	follow up	salt baths
(vertigo) Paroymsal Positional Verti	lie down	avoid sudden change in body	avoid abrupt head movment	relax
Hypoglycemia	lie down on side	check in pulse	drink sugary drinks	consult doctor
Acne	bath twice	avoid fatty spicy food	drink plenty of water	avoid too many products
Diabetes	have balanced diet	exercise	consult doctor	follow up
Impetigo	soak affected area in warm water	use antibiotics	remove scabs with wet compressec	consult doctor
Hypertension	meditation	salt baths	reduce stress	get proper sleep
Peptic ulcer diseae	avoid fatty spicy food	consume probiotic food	eliminate milk	limit alcohol
Dimorphic hemmorhoids(piles)	avoid fatty spicy food	consume witch hazel	warm bath with epsom salt	consume alovera juice
Common Cold	drink vitamin c rich drinks	take vapour	avoid cold food	keep fever in check
Chicken pox	use neem in bathing	consume neem leaves	take vaccine	avoid public places
Cervical spondylosis	use heating pad or cold pack	exercise	take otc pain reliver	consult doctor
Hyperthyroidism	eat healthy	massage	use lemon balm	take radioactive iodine treatment
Urinary tract infection	drink plenty of water	increase vitamin c intake	drink cranberry juice	take probiotics