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A Voice Based Effective Content Mining & Indexing of Local Directory Data

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ABSTRACT: Research in the field of large amount of multidimensional data and extracting the facts and figures of particular business becomes the ubiquitous in the scientific computer community.

Whenever there is a description of data comes, it is obvious to think that this data is in the form of text and numbers in the format acceptable to the particular Database Management System. But since last few years with the advent of social Media like Facebook, YouTube etc. the process able data has taken the new form, which are Images, Videos and Speeches. E-commerce businesses and Artificial intelligence systems of the running time are heavily dependent on pattern matching and extracting the desired data from multimedia sources like videos, images and speeches. There is a need of time to extend the data mining techniques in a very effective manner for multimedia based content as data source and input queries.

KEYWORDS: Multidimensional Data, Artificial Intelligence, Data Mining, Voice Based Text Extraction, Videos, Images, Speeches, Patterns, Behaviour, Acoustics, Lexical feature.

I. INTRODUCTION

Speech is one of the unique ability of the human being, by which a human can express his Sentiments, Desires and Knowledge transfer to others in this world. There is other common method to express same thing which is widely used in this world is by Writing and Texting in a particular language. But to use this method, there are constraints for the human being to be an educated and qualified to transfer the knowledge and to express his sentiments and desires to others. With the advent of human and machine interaction by programming in text formats, it was realised to use human voice as an input to extract the result in either text format or in audio or video format. When a human being speaks, he performs three activities like, first deliver the words which is technically called as Lexical Feature of speech (Vocabulary), Second he makes some expressions on his face, technically called as Expressions, third he express his emotions by using tones and pitches technically called as Acoustics[1][2][3].

II. RELATED WORK

The task of Data Mining in multilingual Voice based system is to organizing, Retrieving and Indexing the desired Voice results and patterns from very large Audio Repository[1]. Data mining research in areas of knowledge retrieval, Prediction, learning and language understanding of audio become an important part of business process. Essential areas of voice based data mining are Call Centre management, Customer support Services, after Sells services, Voice Retrieval and Indexing for search engines, mining knowledge from noisy Data. Audio mining is has four components, audio indexing, speech processing and speech recognition, audio Classification [5]. In audio, there is the main problem of information retrieval - there is a need to locate the text documents that contain the search key. Unlike humans, a computer is not able to distinguish between the different types of audios such as speed, mood, noise, music or human speech - an effective searching method is needed. Hence, audio indexing allows efficient search for information by analyzing an entire file using speech recognition. An index of content is then produced, bearing words and their locations done through content-based audio retrieval, focusing on extracted audio features. It is done through mainly two methods: Large Vocabulary Continuous Speech Recognition (LVCSR) and Phonetic-based Indexing [4][7][10].

III. METHODOLOGY

Dataflow Diagram

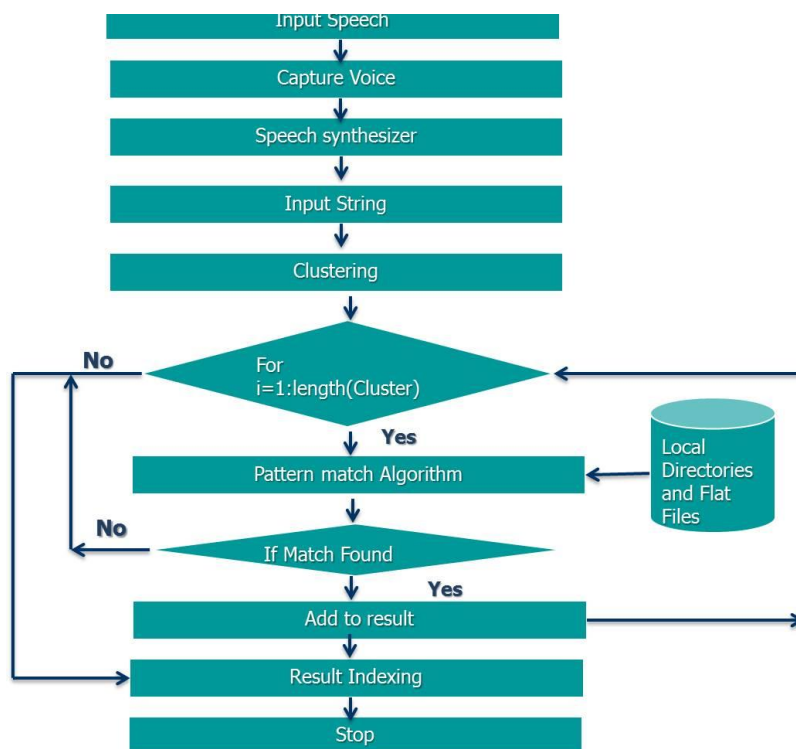


Fig.1. Data Flow Diagram

Speech Recognition: Our aim is to facilitate data mining to those who are physically handicap and also to those who are not aware with computer system. A voice recognition module will convert spoken words into text by using SpeechSynthesizer and SpeechRecognition Objects.

Data Mining by Clustering:

Length of clusters depends on $L(Q)$ Clustering is a decomposition of Query string into several sub string with its length as a One dimensional Euclidean Distance.

One Euclidean Distance between any two points on the real line is the absolute value of the numerical distance of their coordinates.

If p and q are two points on the real line, the distance between them is given by $d(p, q) = |p - q|$

By considering this formula, let's assume

Length of Query is $L(Q)$ then $fC = (C1, C2, C3, C4, \dots, Cn)$

Where, $L(C) = L(Q)$

$$L(C1) = L(Q) - 1$$

$$L(C2) = L(Q) - 2$$

$$L(Cn) = L(Q) - n$$

Or each possible substring or pattern can be represented as $C > C1 > C2 > C3 > Cn$.

IV.EXPERIMENTAL RESULTS

Next >>>

	Cluster	Length	Weight	Start_Index	End_Index	Char_Count
▶	Facility manager	16	1	0	16	15
	Facility manage	15	0.94	0	15	14
	Facility manag	14	0.88	0	14	13
	Facility mana	13	0.81	0	13	12
	Facility man	12	0.75	0	12	11
	Facility ma	11	0.69	0	11	10
	Facility m	10	0.62	0	10	9
	Facility	9	0.56	0	9	8
	Facility	8	0.5	0	8	8
	Facilit	7	0.44	0	7	7
	Facili	6	0.38	0	6	6
	Facil	5	0.31	0	5	5
	Faci	4	0.25	0	4	4
	Fac	3	0.19	0	3	3

Fig.2. Shows spoken Input String and its clustering Statistics

E:\C backup\Latest CV Forms Browse Next >>> 100 % Completed.

File_Name	File_Size (Bytes)	Last_Access_Time
E:\C backup\Latest CV Forms\Admin Incharge for Abudhabi.docx	46249	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Incharge for Abudhabi.pdf	458993	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Incharge for Kuwait.docx	38491	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Incharge for Oil and Gas.pdf	459247	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Manager for Oman in Construction.docx	38039	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Manager for Qatar.docx	38399	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Manager-Civil Construction.pdf	462991	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Manager-SKD.docx	38039	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Admin Manager.docx	38482	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Administration Manager.pdf	462993	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\bio data.pdf	9491	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\CV for Print Dubai.docx	46279	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\CV _Facility Manager.pdf	466631	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\CV_Admin Manager.pdf	466631	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Em symbol.jpg	949	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Executive Secretary cum Document Controller.docx	38313	12-Jun-21 8:10 F
E:\C backup\Latest CV Forms\Mission Manager.docx	38477	12-Jun-21 8:10 F

Fig.3, Shows the directory path in which the spoken String is being searched in the files

Data Mining Next >>> 100 % Completed.

File_Name	Pattern	Count	Mining_Time (Seconds)	Waiting_Time (Seconds)
E:\C backup\Latest CV Forms\latest cv 2020\CV_Zaki- Warehouse Manager.pdf	Facility	1	1.6000022	0
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\CV_Zaki Administration Manager.pdf	Facility	1	1.9000026	1.6000022
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\CV_ZAKI-Principal.pdf	Facility manage	1	2.2400031	3.5000048
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\ATS Compliant CV\CV_Zaki Administration Manager.pdf	Facility manage	1	2.4200034	5.7400079
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\ATS Compliant CV\CV_Zaki Store Warehouse Manager.pdf	Facility manage	1	2.6700037	8.1600113
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\latest Exp\Experience Certificate Industry and Others.docx	Fac	2	4.5100063	10.830015
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\latest Exp\Industry Experience Certificate.docx	Fac	2	5.8100081	15.3400213
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\New CVs 24 may 2021\CV_Zaki IT,Computer Teacher.pdf	Facility manage	2	6.2800088	21.1500294
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\New CVs 24 may 2021\CV_Zaki Store Manager Administrator.docx	Fac	1	6.410009	27.4300382

Fig.4. Shows Data Mining Statistics and all possible sub strings matched in the browsed directory files

Sort By Count

File_Name	Pattern	Count	Mining_Time (Seconds)	Waiting_Time (Seconds)
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\New CVs 24 may 2021\CV_Zaki IT,Computer Teacher.pdf	Facility manage	2	6.2800088	21.1500294
E:\C backup\Latest CV Forms\latest cv 2020\CV_Zaki- Warehouse Manager.pdf	Facility	1	1.6000022	0
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\CV_Zaki Administration Manager.pdf	Facility	1	1.9000026	1.6000022
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\CV_ZAKI-Principal.pdf	Facility manage	1	2.2400031	3.5000048
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\ATS Compliant CV\CV_Zaki Administration Manager.pdf	Facility manage	1	2.4200034	5.7400079
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\ATS Compliant CV\CV_Zaki Store Warehouse Manager.pdf	Facility manage	1	2.6700037	8.1600113
E:\C backup\Latest CV Forms\latest cv 2020\CV 2021\New CVs 24 may 2021\CV_Zaki Store Manager Administrator.docx	Fac	1	6.410009	27.4300382

Fig.5. Shows indexing of searched files based on Character count or File Name or Mining Time or Waiting time.



V. CONCLUSION

We have Implemented Voice Based Effective Content Mining and Indexing of Local Directory Data successfully. Our Speech recognition module, Clustering worked as desired and content mining algorithm successfully shown desired result including Occurrences of String and Sub string, Name of the files and directories with any depth containing these strings and sub strings.

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