Smart digital marketing application using cloud computing & Machine learning technique.

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Abstract : *Marketing research and approached is the core business process for every enterprices. Different types of approaches like telemarketing , advertising, publcation source available for marketing . But now a day Digital marketing very popular because of internet technology , online marketing research is a relatively new and a more efficient approach to detect marketing changes. This paper focusses on the topic of digital marketing techniques and applications , by utilizing both social choice theory and cloud computing techniques, machine Learning algorithms, we design and algorithms to assist the marketing manager in making highly efficient and pragmatic decision with regard to sale strategies. We explore the connection between group decision making and cloud computing and demonstrate how they can function together ,so as to benefit and support the marketing Team as well as Enterprise.*

Keywords: Digital Marketing, Data digitalization techniques , Cloud base digitalization, Business Planning cloud computing.

I. INTRODUCTION

In Digital marketing research is the core business process for every enterprise, which links the process for every enterprise, which links the consumers , customers, and users to the marketer. We provide a systematic flow for marketing using application, Android application as well as web-based platform for enterprises or business. The definition of marketing research is," Marketing is the systematic and objective search for, and analysis of, information relevant to the identification and solution of any problem in the field of marketing." Marketing research should assist the marketing manager in making appropriate decisions in the process of identifying and satisfying customer wants, needs and desires. With the rapid development of informational science and tech. online shopping is convenient method for people to purchase products. However, as the life cycle of products is becoming dramatically less; the traditional methods may not be amenable to offer significant and timely feedback to the marketing manager. For this reason, there is a need of an innovative solution for collecting and analyzing information to appropriately convey such information.

we used machine learning concept for analysis of data sorting, and some automation task, like calling, messaging social theory focusing on group decision processes and procedures, and is appears to be growing in research literature relating to the aggregation of individual inputs into collective outputs.

1.Firstly we create website login panel for call now telemarketing application. 2.For every company we provide admins /user credential who can log in and access our website.3. Then we create panel for new user for telemarketing who can access mobile application. we can edit their data easily.4. Then we can upload our data on the website using upload database option.5. Then we can view our main database and download it. Also we can edit uploaded data on same website. 6. Then we can view all generated enquires. This is useful to see result of our work. 7. Finally we can view and download the report of telemarketing calls on daily, monthly and yearly basis. 8. It is useful to check performance of employee in work. 9. Then created the application its login detail is generated by admin using our website. 10. Admin can select active or not active status of app user.11.In this app user can view his dashboard and profile details which are set by admin of website. 12. This information directly saved to database. User search any details of service which is saved in database user directly access and provide to their customer. Cloud computing has recently become a popular topic, which represents a fundamental change in the area of information technology. Definition of cloud computing "Cloud computing is a model for enabling computers resources (e.g., network, servers, storage, applications and services). That can be rapidly provision and released with minimal management efforts or service provider interaction. Especially when there are four primary cloud deployment models, public cloud, private cloud, community cloud and hybrid cloud. The community cloud refers to

special-purpose cloud computing environments; shared and manage by the number of related organizations. The hybrid cloud is a composition of two or more distinct cloud infrastructure that remain unique entities.

Based on these backgrounds, we propose a new approach toward marketing research for marketing managers, based on these social choice theory and cloud computing. The work presented here is built on the idea that a large no. of user's ratings can be aggregated into a collective opinion, so as to provide suggestions to managers; we can design the procedure and utilized public or private cloud as a hosting.
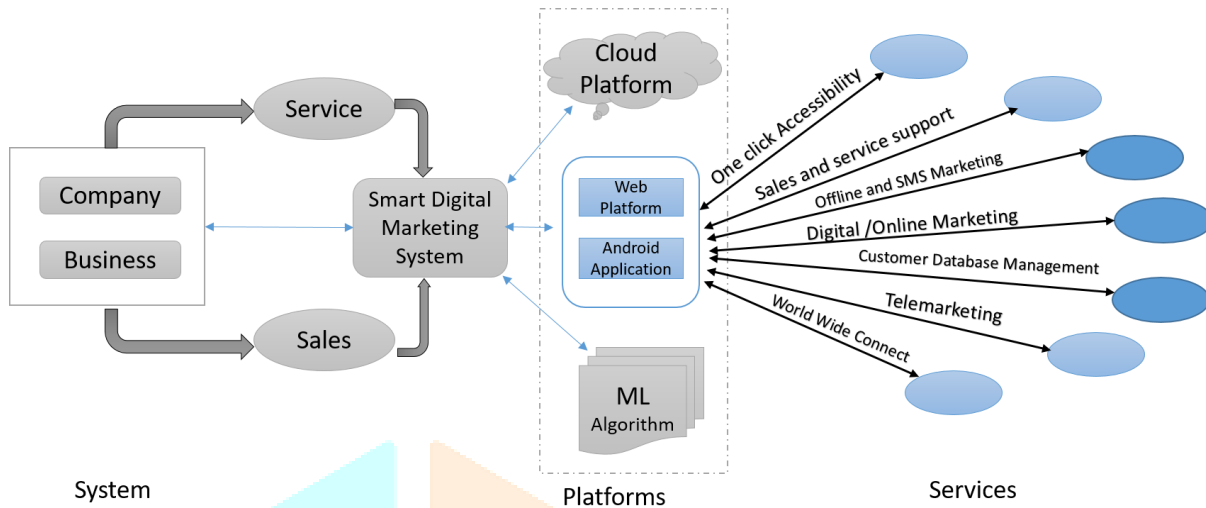

Fig: A Smart Marketing System diagram with applications, services and technology

A] Literature Survey: - Firstly we analyzed various paradigms promising to deliver IT as services I.e., web data center, utility computing, service computing, Grid computing, p2p computing, market-oriented computing, cloud computing also. Cloud is type of parallel and distributed system clouds are designed to provide services to external users, providers need to be compensated for sharing their resources and capabilities. In this paper I.e. (market-oriented cloud computing) we have proposed architecture for market-oriented allocation of resources within clouds.

In next paper (cloud services and marketing) we analyzed process improvements in marketing automation lead tracking, and inbound marketing as a result of cloud services. No matter which cloud supported services are used, they are less time and money consuming and easier to access and manage. Main advantage of cloud services is broad application of cloud technology in our everyday life, especially in terms of business, is often related to instant access to the tools used by the millions for affordable service fees. Then disadvantage of cloud services the first shortcoming of cloud computing is the fact that an Internet connection is necessary to take full advantage of cloud service. Therefore, when users are offline, or if there are some disruptions with the cloud service the data may not be accessible at all.

1) pre-cloud marketing: - In this only used outbound marketing and product differentiation. E.g., Tv and outdoor ads, direct marketing etc. Before cloud services, marketers used concept of 4ps I.e. (product, price, place and promotion.)

2) Cloud based marketing tools made it possible for organizations to bring customers on their sites, monitor their behavior, compare the result in real time and adjust marketing strategies accordingly.

Then we analyzed the next paper I.e. (cloud computing) Here we see the uses of cloud storage, understanding the cloud architecture. Cloud architecture, the systems architecture of the software systems involved in the delivery of cloud computing, comprises h/w, s/w designed by a JOURNAL OF COMPUTING. VOLUME2 , ISSUE 3. MARCH 2017,ISSN 2151-9617. HTTPS://SITES.GOOGLE.COMSITE/JOURNALOFCOMPUTING/

[1] Advantages: - a. Lower cost computers for users. b. Improved performance. c. Lower IT infrastructure cost. d. Fewer maintenance Issues. e. Lower software cost. f. Increased computing power.   g. Unlimited storage capacity. h. Increased data safety.

[2] Disadvantages: - a. Requires a constant internet connection. b. Doesn't work well with low-speed connections.   c. Can be slow.   d. Features might be limited.   e. Stored data might not be secured. f. If the cloud loses your data, you're screwed.

Who benefits from cloud computing?
 I) Collaborators   II) Road Warriors   III) Cost-conscious users. IV) Cost-conscious **IT** department   V) Users with increasing needs.

II.   Applications of cloud services in market

Application of cloud computing listed below:

1.Art

2.Business

3.Data storage and backup

4.Education

5.Entertainment

6.Management

7.Scocial and also used in digital marketing

III.PROPOSED SYSTEM

This system is actually work for marketing in different domain I.e. Banking system, industry system, education system etc. But we work at only one domain that is education domain. This application is work for education admission marketing, also one of the course marketing. But here we actually used for only class working this actual concept is we create one of the applications for staff. In classroom teachers give attendance of students and analyzed which student is absent and same time teachers are call to their student or his parents and he loses some lectures time so avoided this problem this plan is properly work, how? we create one of the websites for storing the student's data in this we provide some function for view, update and delete data. Here also generate the one column for student status details, and throughout the app we can provide automatic call to that absent students side by side provide the messages and automatically call from this app then system asked the question why you are absent? And then student answer sentence also detects this system and this sentence stored to database and then this database views their admin means staff these are the whole system of this plan.

Implementation:-

Firstly we create website login panel for call now telemarketing application.

For every colleges we provide admins /users credential who can login and access our website.

Then we create panel for new user for telemarketing who can access mobile application. We can set its active status and other details on our website.

Then We can view users of call now who can access mobile application. We can edit their data easily

Then we can upload our data on the website using upload database option.

Then we can view our main database and download it .Also we can edit uploaded data on same website.

Then we can view all generated enquires. This is useful to see result of our work.

Finally we can view and download the report of telemarketing calls on daily, monthly and yearly basis.

Then created the application its login detail are generated by admin using our website. Admin can select active or not active status of app user.

In this the app user can view his dashboard and profile details which are set by admin of website.

This information saved to directly database. [user search any details of service which is save in database user directly access and provide to their customer.
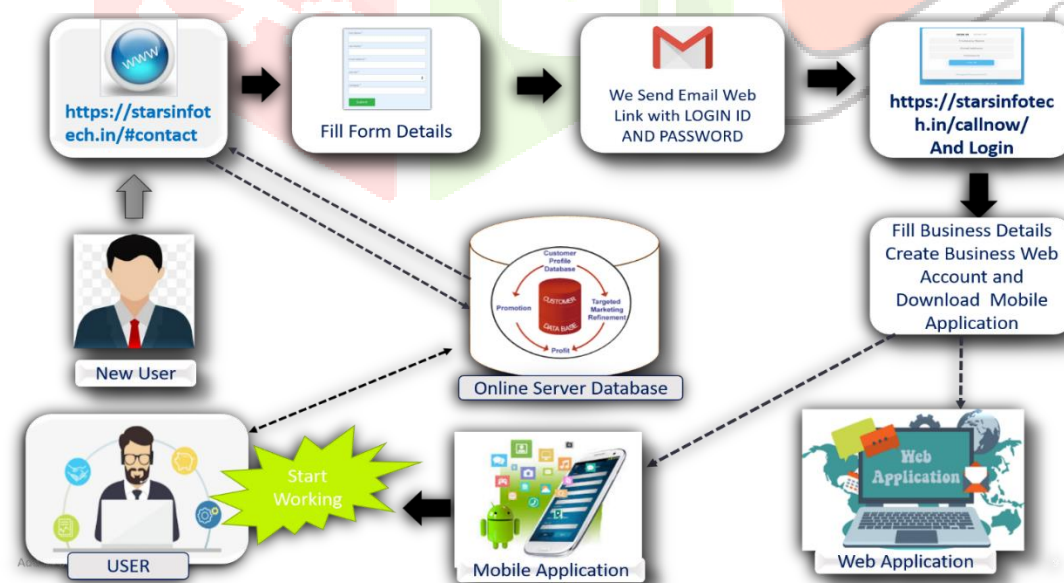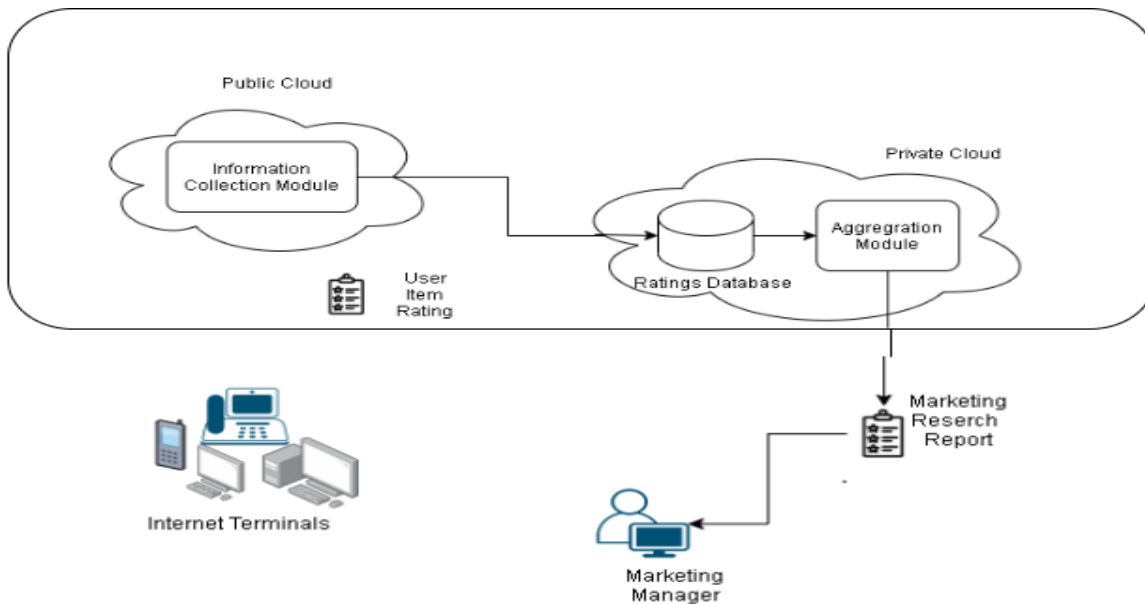

Fig : Smart System application work flow

I. ONLINE RESEARCH DATA ANALSIS ALORITHEM IN CLOUD COMPUTING

The conceptual system architecture for the online marketing research is based on social choice theory and cloud computing.

II. Fig : **ONLINE   RESEARCH DATA ANALSIS A L O R I T H E M IN CLOUD COMPUTING**

#Cloud computing platforms for machine learning :   There are many cloud platforms that provides these web services for machine learning . The most popular of these are Amazon web services , Microsoft Azure, Google cloud , and IBM Cloud.

     The Google cloud platform is a cloud computing platform that is provided by google. It was launch in 2008 and it provides the same infrastructure for companies that google also uses in its internal products. Google cloud provides various products for machine learning such as:

1)Google Cloud AutoML: This is used for training an AutoML machine learning model and its development.

2) Google cloud AI platform: This is used for creating , training, and managing ML models.

3)Google cloud speech to text: This is a speech recognition system for transmitting from speech to text and it supports 120 languages.

4)Google cloud vision AI: This is used to create machine learning models for cloud vision that detect text, etc.

5)Google cloud Text to speech: This is a speech creation system for transmitting from text to speech.

6)Google cloud natural language: This is for natural language processing for analyzing and classifying text.

IV. ALGORITHMS FLOW CHART
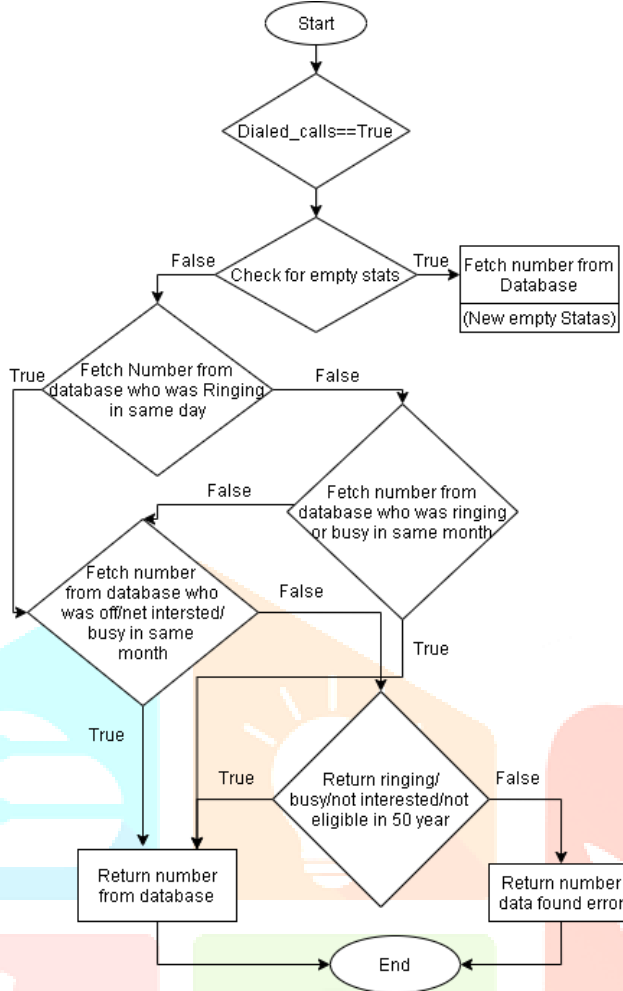
V. FIGURES AND TABLES

Example 1.Given a user set u={u1,...........,u5} five items = {I1,…...,I5} and the user item ratings matrix information in the following table.

Table 1

USER _ITEM RATINGS DATABASE

	I_1	I_2	I_3	I_4	I_5
user$_1$	5	3	4	1	2
user$_2$	5	4	3	2	1
user$_3$	1	4	3	2	5
user$_4$	2	4	3	5	1
user$_5$	5	3	4	2	1

In Table I ,there are five items ,so every user should rate each item on a 1to5 scale. If there are seven items, the ratings scale should be 1 to 7.

A.Information collection module :

The information collection module is a simple stage for specialists ,this module is deployed to a public cloud, which is a convenient way in which to garner information from the public. Given a user –item database , user rated items with a 5 on a 1-to-5 scale , which indicates that the strongly like this item ,Each database has an initial set of users U, which we assume is a finite set consist of at least two elements.

elements:$U = \{u_1,\ldots, u_n\}$, where $n \geq 2$, which is

$f(X)= \beta 0+ \Sigma Xj\beta jpj=1\ldots$ (1).

B. Aggregation module:

Aggregation module is an important module to analyze all the record of the user-item database, which should aggregate individuals preference order or a collective judgment aggregation approach in social choice theory ,which are preference aggregation

and judgement aggregation respectively. In this paper we both used i.e. preference and aggregation model, to attain the group decision, this module is deployed to a private cloud, which is beneficial to protect system privacy and security for enterprises.

$$RSS(\beta) = \Sigma(yi - f(xi))Ni = 12 = \Sigma(yi - \beta 0 - \Sigma xij\beta jpj = 1))Ni = 12$$

c. Group decision based on preference model:

When the module has received the data, such as user-item ratings matrix information in Table I, this step should obtain the group decision. A very simple and effective mechanism for aggregating preferences of multiple users is to apply preference rules.

Given messages m1 and m2, we can obtain an encryption of

m1 + m2 by computing: EPk (m1) · EPk (m2) =

gm1 · r N 1 · gm2 · r N 2 mod N2 = gm1+m2 · (r1 · r2) N mod N2 = EPk (m1 + m2).

Hence, Paillier is an additive homomorphic cryptosystem.

VI. Conclusion

This digital research is one of the most important stages for every colleges, as social choice theory and cloud computing can be utilized to assist the admins to make of colleges, he most proper decisions relating to college strategies. We designed an algorithm to provide a new method for online avoid the college staff efforts, with the information collection module can be deployed to a public cloud which can expediently gather more information from the students, while the aggregation module is deployed to a private cloud which is the main stage of algorithm.

VII. Acknowledgements

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