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# Business Intelligence for Real Estate Advertising System

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***Abstract*: We propose to build a real estate Advertising Using Business intelligence (REABI)-Real Estate Advertising Portal that allows users to post property for sale, Buy as well as search sort property and contact its owner online ,Payment gateway Page it gives location type of property, Also provide 24/7 service to all its users .Also in this we provide BI Panel which gives virtual tour of proposed property, Market survey analysis BI graph ,Quality assurance report, Every user having Profile which created at the time of Register ,and once registering is done then every time only login command is to use. This portal is Effecting on countries GDP rate. Because Real estate is 10%of total GDP***
***Keywords: Business Intelligence(BI) ,Real estate advertising, web advertising***

## I. INTRODUCTION

Due to access to user information in social network portals it is possible to target marketing messages even in ordinary approaches, such as web banners (banner ad) campaigns. This form of online advertising entails embedding an advertisement into a web page, and the advertisement is constructed from an image. When viewers click on the banner, they are directed (click-through)to the website advertised in the banner. Banner based advertisement campaigns on social networks portals may be monitored in real-time and may be targeted in a comprehensive way depending on the viewer's‟ interests

## II. RESEARCH SURVEY

Paper[1]ACM-Query Rewriting in advertising key point is Sponsored search Advertising .Paper having sponsored search advertising in sponsored search advertisers bid on keywords and exact search results match relevant ads and show them also they apply quality filters for search result.

Paper[2] Springer-IJDSA: clustering Refinement in this paper used for description of data and discover patterns hidden inside evaluation of clustering only using topological or geometrical characteristics of the data.

Paper[3]IJIRMF-International Journal-Big data platform architecture the paper consist about data using apache Hadoop - spark for as cloud tools.

Paper[4] Selecting data Mining model for web advertising in virtual communities consist advertising using data miningSelect Selecting data Mining model for web advertising in virtual - communities

Paper[5]IEEE: Cloud reliability consist rapid adoption of Cloud computing in various platforms like advertising ,eshopping, video streaming ,health care like Cerner Netflix, etc. amazon. etc. hence the cloud based advertising is now a days more effective ,easy ,time save ,cost effective.

## III. PROPOSED METHOD

Following are modules used in Project:

*1)* Module-1-User Registration module
1) seller registration module
2) Buyer registration module

*2)* Module-2-Admin-
In this module Admin can manage posted advertises, and Business Intelligence panel.

*3)* Module-3-Advertisement Posting module –
In this module new property can be posted by seller, who is interested in selling ,renting property with proper details.

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*4)* Module-4-Advertisement search module –
In this module property can be search by Citi wise , state wise

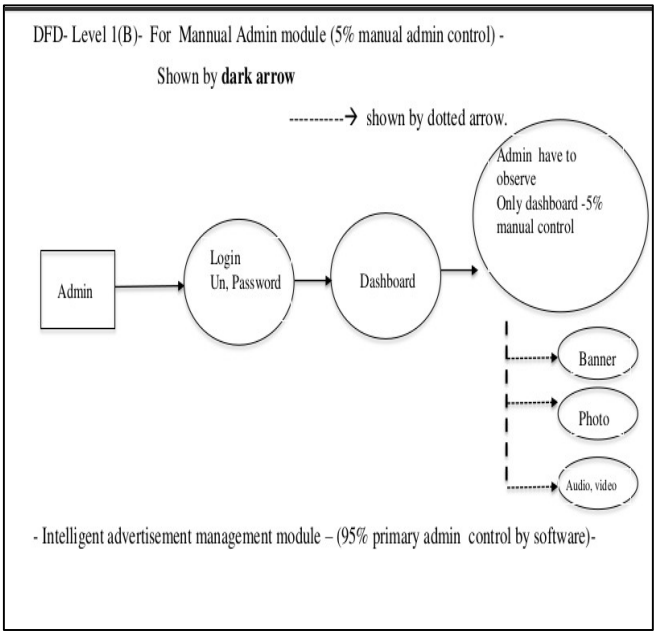
*5)* Module-5-Validation of data entered by user and error handling
In this module the validity of data Entered by the user during various advertisement process checked through various validation checks .For example –user is existing user, please enter correct user ID…etc.

*6)* Module-6-Login Module–
In this module Registered user login through correct user ID and Password, if the password is invalid system displays invalid password message

*7)* Module-7-BI Panel

| | | |
|---|---|---|
| 1) Banner management | 2)video mgmt. | 3) Photos management |
| 4) Upload icons | 5)User mgmt. | 6)Add city |
| 7) BI advertising graph | 8) BI-Virtual tour | 9) BI-Quality assurance report |

Following is the data flow diagram regarding REABI

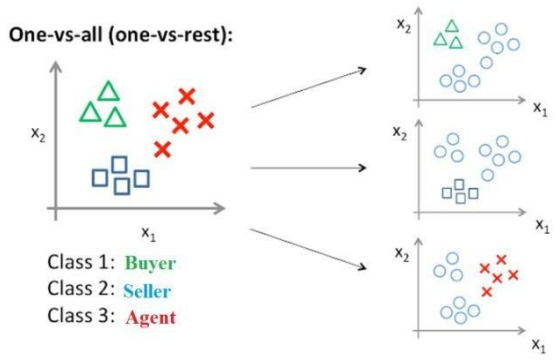



## IV. ALGORITHMS USED

One vs. All (One-vs.-Rest)
In one-vs.-All classification, for the N-class instances dataset, we have to generate the N-binary classifier models. The number of class labels present in the dataset and the number of generated binary classifiers must be the same. As shown in the image, consider we have three classes, for example, type 1 for Buyer, type 2 for Seller, and type 3 for Agent. Now, as I told you earlier that we have to generate the same number of classifiers as the class labels are present in the dataset, So we have to create three classifiers here for three respective classes. Classifier 1:- [Buyer] vs [Agent, Seller]
Classifier 2:- [ Seller] vs [Buyer, Agent] Classifier 3:- [Agent] vs [ Seller, Buyer]

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Now to train these three classifiers, we need to create three training datasets. So let's consider our primary dataset is as following




| Features | | | Classes |
|---|---|---|---|
| x1 | x2 | x3 | B |
| x4 | x5 | x6 | S |
| x7 | x8 | x9 | A |
| x10 | x11 | x12 | B |
| x13 | x14 | x15 | S |
| x16 | x17 | x18 | A |

Class 1 :- Buyer
Class 2 :- Seller
Class 3 :- Agent

We can see that there are three class labels Buyer, Seller, and Agent present in the dataset. Now we have to create a training dataset for each class.Here, we created the training datasets by putting +1 in the class column for that feature value, which is aligned to that particular class only. For the costs of the remaining features, we put -1 in the class column.

Let's understand it by an example, Consider the primary dataset, in the first row; we have x1, x2, x3 feature values, and the corresponding class value is Buyer, which means these feature values belong to Buyer class. So we put +1 value in the class column for the correspondence of buyer. Then we applied the same for the x10, x11, x12 input train data.

For the rest of the values of the features which are not in correspondence with the Buyer class, we put -1 in their class column. Now, after creating a training dataset for each classifier; we provide it to our classifier model and train the model by applying an algorithm.

**Main Dataset**

| Features | | | Classes |
|---|---|---|---|
| x1 | x2 | x3 | Buyer |
| x4 | x5 | x6 | seller |
| x7 | x8 | x9 | Agent |
| x10 | x11 | x12 | Buyer |
| x13 | x14 | x15 | seller |
| x16 | x17 | x18 | Agent |

Training Dataset 1
Class :- Buyer

| Features | | | Buyer |
|---|---|---|---|
| x1 | x2 | x3 | +1 |
| x4 | x5 | x6 | -1 |
| x7 | x8 | x9 | -1 |
| x10 | x11 | x12 | +1 |
| x13 | x14 | x15 | -1 |
| x16 | x17 | x18 | -1 |

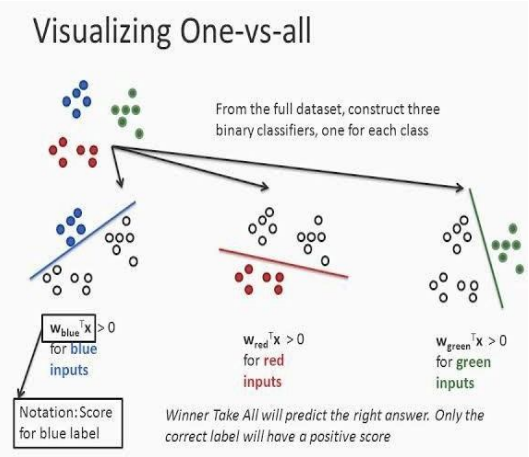
**Main Dataset**

| Features | | | Classes |
|---|---|---|---|
| x1 | x2 | x3 | Buyer |
| x4 | x5 | x6 | seller |
| x7 | x8 | x9 | Agent |
| x10 | x11 | x12 | Buyer |
| x13 | x14 | x15 | seller |
| x16 | x17 | x18 | Agent |

Training Dataset 1
Class :- Buyer

| Features | | | Buyer |
|---|---|---|---|
| x1 | x2 | x3 | +1 |
| x4 | x5 | x6 | -1 |
| x7 | x8 | x9 | -1 |
| x10 | x11 | x12 | +1 |
| x13 | x14 | x15 | -1 |
| x16 | x17 | x18 | -1 |

Training model, when we pass input test data to the model, then that data is considered as input for all generated classifiers. If there is any possibility that our input test data belongs to a particular class, then the classifier created for that




class gives a positive response in the form of +1, and all other classifier models provide an adverse reaction in the way of -1. Similarly, binary classifier models predict the probability of correspondence with concerning classes.

By analysing the probability scores, we predict the result as the class index having a maximum probability score.

In this Paper we used server XAMPP

Table.1.development Environment Specification

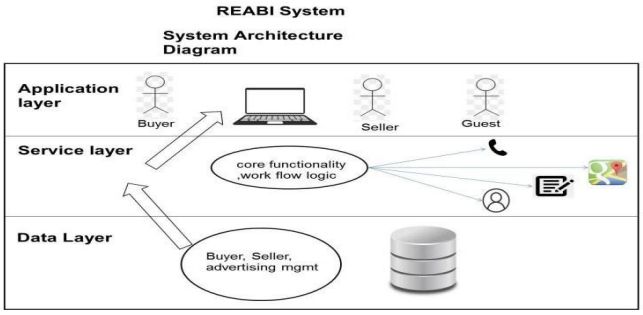
| Experimental Environment | |
|---|---|
| Operating System | Windows 7 onward, Linux |
| Technology | PHP, JAVA Script ,HTML |
| Tool | UML,Data Mart tool, seleniumIDE,Googlewebdev |
| Server | XAMPP |
| Memory | 8GB |

Assure that the users will be given software training documentation and reference material.

## V. SYSTEM DESIGN

Following is system architecture diagram for REABI

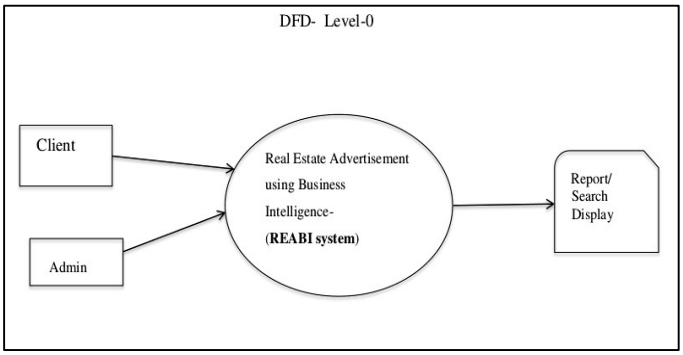
Fig.5.1.system Architecture Diagram for REABI




### *A. Data Flow Diagramming (DFD)*

Is considered as a common technique for creating process models. Data flow, data store and external entity are elements of a DFD process. That process is an activity or function performed for a specific business reason. It can be manual or computerized. We define data flow as single piece of data or a logical collection of data that always starts or ends at a process. We define data store as a collection of data that is stored in some way where data flowing out is retrieved from the data store and data flowing in is either added or updated to the data store. An external entity could be a person, organization, or system that is external to the system but interacts with it .DFD level 0 diagrams show all the major processes that comprise the overall system: how the major processes are interrelated by data flows, how they interact with external entities and how they add data stores. Fig.DFD level 0 provides an example of a DFD level 0 diagram for our REABI application .There are also DFD level 1, 2, and 3 diagrams. In general ,DFD level 1 diagram is created for each of the major processes shown on the level 0 diagram. It shows all the internal processes that comprise a single process on the level0 diagram and also how the information moves to and from each of these processes. If a parent process is decomposed into, for example, three child processes, these three child processes wholly and completely make up the parent process.

Fig.5.2.DFD Diagram level-0 (REABI)



*B. Use Case Diagramming (DFD)*

The Use case diagram is used to identify the primary elements and processes that form the system..

The major steps performed by this use case are as follows.

*1)* The applicant fills in an online advertising form containing personal and estate information, along with the type of advertising.

*2)* The second step is to validate/verify the information in the advertising form.

a. If the information is false the application is denied and a rejection mail is sent to the applicant.

b. If the application is approved, information about the client and the estate is stored in the relational database. A confirmation mail is sent including the client ID, the login name and password, and the information about the agency terms, conditions and provision.

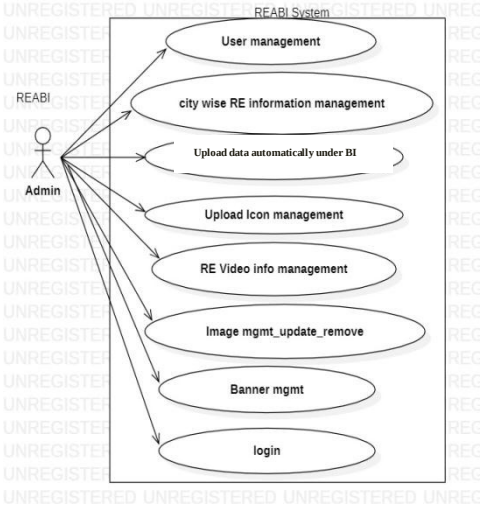
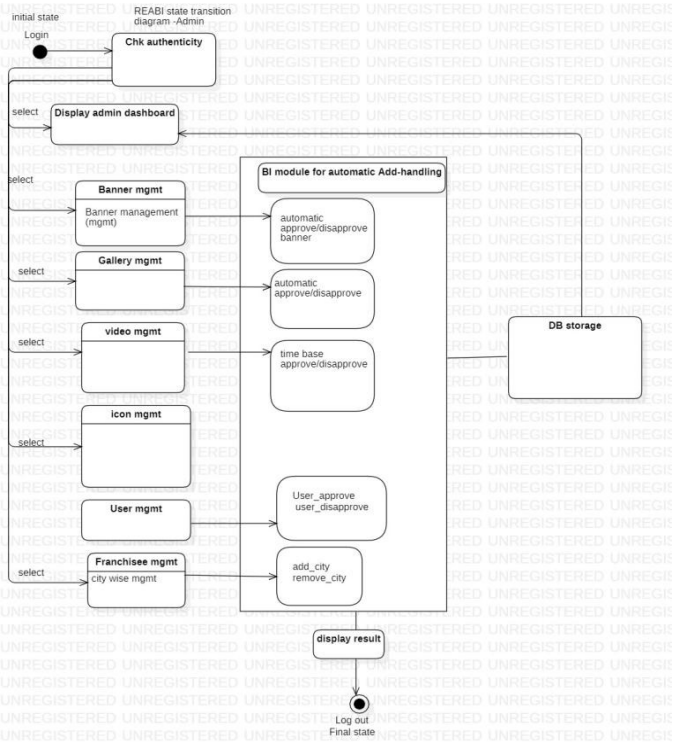
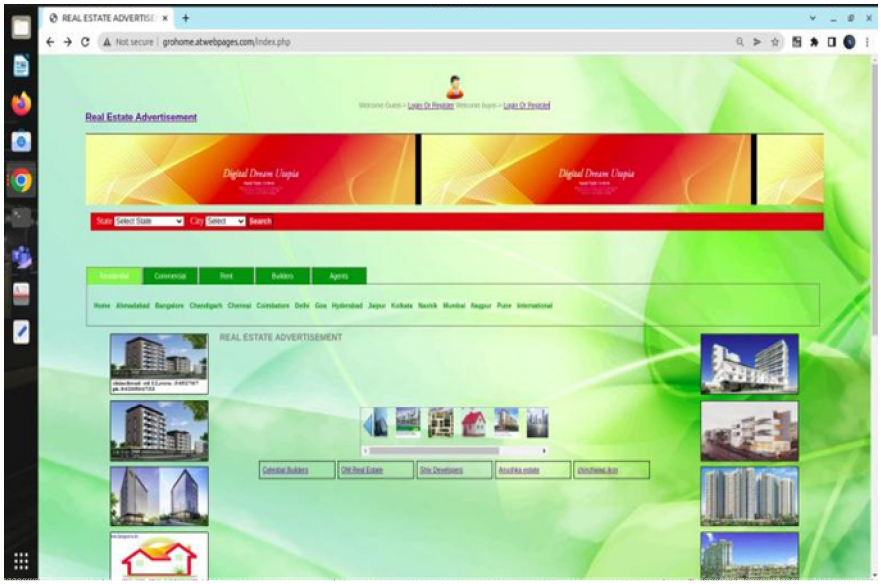



Fig.5.3.Use case Diagram (REABI)

*C. State Transition Diagram*



## VI. SNAPSHOTS




Snapshot:1.Homepage(windows/Linux-os)




Snapshot:2. Homepage on Android

### *A. Additional Features*

Following Additional features are :

*1)* Photo Management
*2)* Video Management
*3)* banner management
*4)* Icon Management
*5)* BI Panel - BI Panel which gives virtual tour
*6)* Market survey analysis BI graph
*7)* Quality assurance report

### *B. Future Work*

# Property price comparison chart -

With the increase of e-commerce-businesses the internet has become, more and more, a key place for decision making. For example, when users want to buy a product or make use of a service online they often face a huge amount of information that they have to consider. Good comparison tables, especially in property search, can help to reduce cognitive bias involved when making decisions.

# Legal advice consultant -

Get end-to-end assistance in your property purchase. Help in property title check, sale agreement/deed drafting, registration and more. To verify there are no issues with respect to ownership transfers, partitions, conversions, mutations etc .To verify if the land on which the property is being or been built has been procured legally To verify Occupancy Certificate- if the property has been constructed in compliance with the provided permission And other legal checks so the property is legally safe to buy. Working on the project was good experience. I understand the importance of Planning and Designing as a part of software development. But it's very difficult to complete the program for single person. System provide major advantages such as speed and accuracy of operation, Time Efficiency, Cost Efficiency, Automatic data validation, Data security and reliability, Easy performance check ,Dynamic and User Friendly. Generates real-time, comprehensive reports and ensures access to complete and critical information, instantly .a)Design ,Developed software as per OOSE -Object oriented Software Engineering process will be very effective and will be successful implementation at customer site .

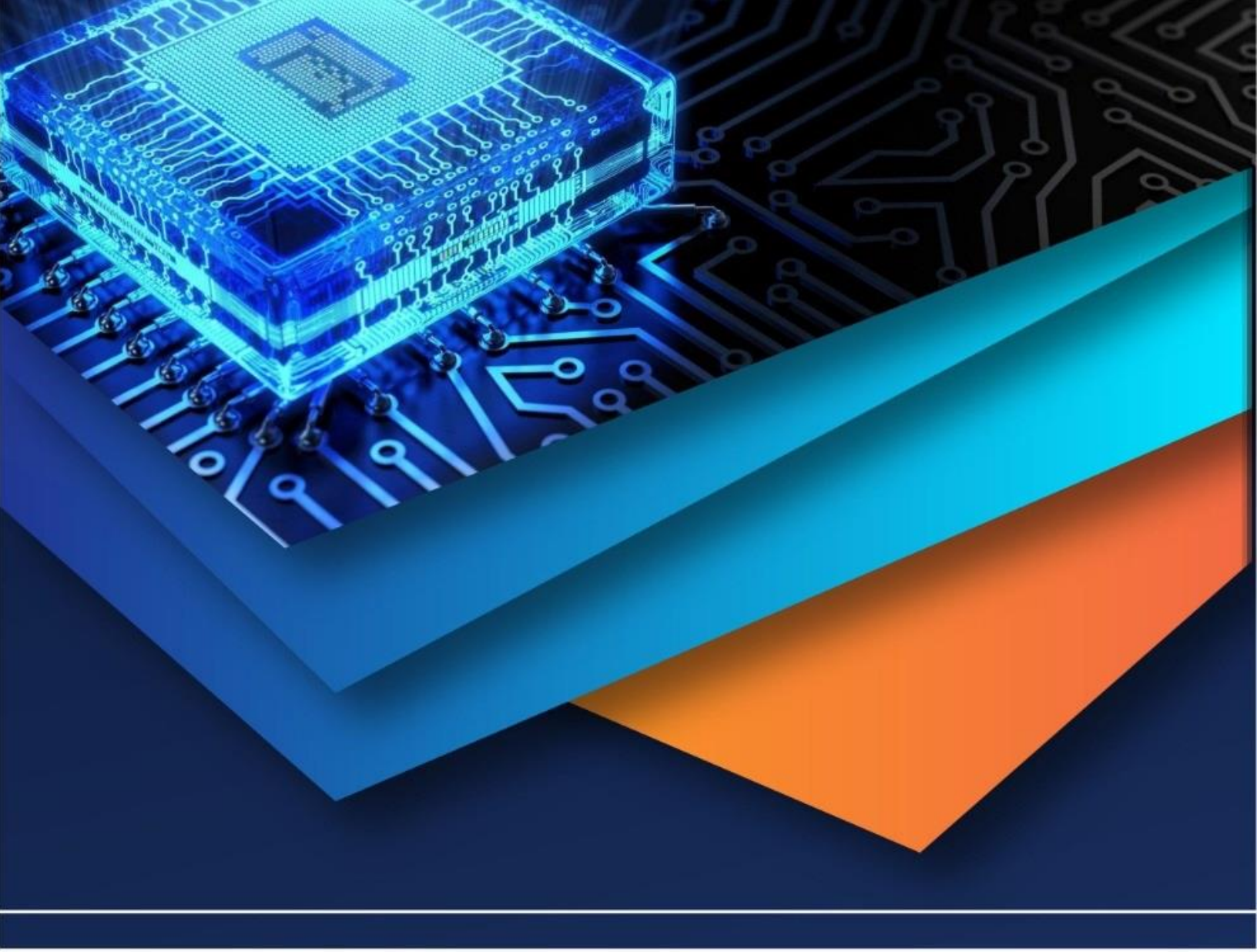
## VII. CONCLUSIONS

The Business Intelligence for Real Estate Advertising System is Portal and can easily be adopted by any of the Firm /company / Factory those are dealing with property selling; purchasing .there is huge Demand in real estate sector, and Its useful in todays life

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