Introduction

A overview - A brief description about project.

During our's long term internship in smart Bridge on Data Analysis in virtual internship we have given a project to develop a web application it is an application project that is stored an a remote server and delivered over the internet through we are instructed to do a Comprehension analysis on a data given to us to analysis we have to Created unique visualization to provide dashboard and story based on our analysis to Creat a web app by using html Code and done web integration

our team project to Create an web application on basic of our analysis in our project & our project title : House price prediction in metropolitan Area of india.

House price prediction in metropolitan area of india

Introduction:-

The housing market in metropolitan areas of india dynamic and influenced by various factors such as demographics, economic conditions, infrastructure development, and government policies, with the rapid urbanization and increasing population in this areas

This research will leverage historical housing data including features as location, property, size, neighborhood characteristics.

The primary objective of this study

* Data Collection and pre processing
* Feature selection and Engineering
* Model Development
* Evaluation and validation
* interpretation and Insights.

Specify the Business problem:

The business problem revolves around accurately predicting house prices in metropolitan city in india. Despite the wealth of available data, the real estate market's complexity and dynamism pose challenges for potential home buyers, real estate agents, and investors in estimating property values with precision. By leveraging relevant datasets and features, stake holders seek to develop a predictive model that offers insights into the myriad factors shaping house prices. The overarching objective is to furnish a dependable and precise is to furnish a dependable and precise predictive tool, empowering users to navigate the competitive and optimize their returns on investement.

Literature survey:

These references provide a solid foundation for your literature survey on house price prediction methodologies. Here's a brief overview of each study.

* Rosen, S (1974) "Hedonic prices and implicit markets: product Differentiation in pure Competition" this seminal paper introduces the Concept of hedonic pricing, which involves estimating the implicit prices of individual characteristics & attributes of goods & services.

* Gn A. (1992). "specification and estimation: Gn's study extends Rosen's hedonic pricing framework by providing details on specification and estimation techniques.

* Kang Y. et al (2021) understanding house price appreciation using multi source big geo data and machine learning" By leveraging diverse dataset and advanced analytical methods.

Business requirements:

The business requirement for house price prediction in a metropolitan city in India are multifaceted and encompass several key aspects.

* Accurate prediction model Develop a prediction model that accurately estimates property prices by leveraging relevant data sets and employing advanced machine learning techniques

* identification of key features identify the key features influencing house prices to provide stake holders with actionable insights for decision making

* scalability Ensure that the solution is scalable to handle large volume of data, accommodating the dynamic nature of the real estate market in metropolitan cities.

Social & Business impact

predicting house prices in metropolitan areas of india can have significant social and business impacts

* investment opportunities : for business stake holder such as real estate developer, investors and financial institutions, house price prediction models offer valuable insights into market trends and investment opportunities.

* property valuation : Home owners buyers, and sellers can benefit from house price prediction models by gaining a better understanding of the current and future value of properties.

* Mitigating housing Market volatility : By providing insights into the factors influencing house prices prediction Models can help mitigate the volatility of the housing Market.

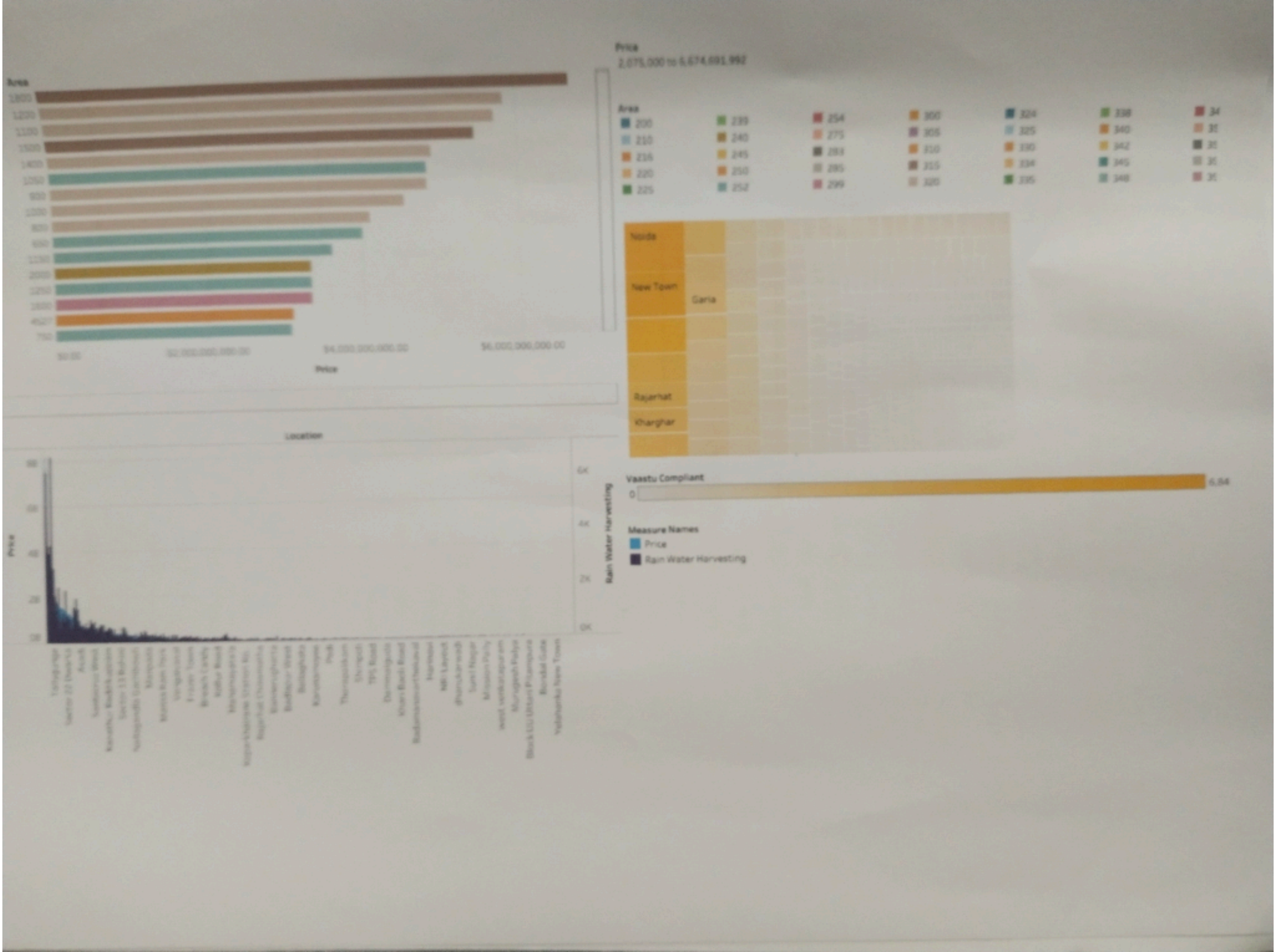
Dashboard:

A dashboard helps you to monitor events of activites by providing key insights and analysis about your data on one & more pages

A dashboard refers to a visual interface that provides users with an overview key information, metrics and data points relevent to a particular process, system, & buriness operation, Dashboard are designed to present complex information in a simplified and easily understandable format, often through charts, graphs, tables and other visual elements.

MAIN DASHBOARD

HOUSE PRICE PREDICTION IN INDIA


Area
1800
1200
1100
1500
1400
1250
900
1200
800
650
1150
2000
1250
1800
450
750
$0.00
$2,000,000,000.00
$4,000,000,000.00
$6,000,000,000.00
Price
Price
2,075,000 to 6,674,691,992
Area
200
210
216
220
225
239
240
245
250
252
254
275
283
285
299
300
305
310
315
320
324
325
330
334
335
338
340
342
345
348
34
35
Noida
New Town
Garia
Rajarhat
Kharghar
Vaastu Compliant
0
6.84
Location
Price
Rain Water Harvesting
6K
4K
2K
0K
Measure Names
Price
Rain Water Harvesting

Sheet 12

Price

0M 200M 400M

Location

Andheri .. 2500
Ballygun..
Beniapu.. 2100
Delhi 2700
E M Byp.. 6900
Golf Links 3375
Goregaon 3507
Goregao.. 3300
Hari Nag.. 2700
Jodhpur .. 2800
Kalyan 7000
Kandival.. 2590
Kukatpa..
Lake Gar.. 4800
LB Nagar 8500
Manikon.. 5000
mumbai 2000
Pitampu.. 2000
Preet Vi.. 2700
Prithvir.. 12552
Punjabi .. 2520
Rajajina..
Sainik F.. 6251
Saket 5500
Sea Face 2500
Sector 1.. 4580
Sector 1.. 5000
Sion 5642
Topsia 9000
Upper W.. 3500
Vasant ..
Vasant .. 3500

Area

2000 2100 2500 2520 2590 2700 2800 3015 3200 3300 3375 3500 3507 4000 4580 4640 4800 5000 5500 5642

Maintenance Staff
Landscaped Gardens
Intercom
Indoor Games
Gymnasium
ATM
BED
Car Parking
Children'splayarea
Club House
Gasconnection

Measure Values
2,925,25

No. of Bedrooms
6 to 9

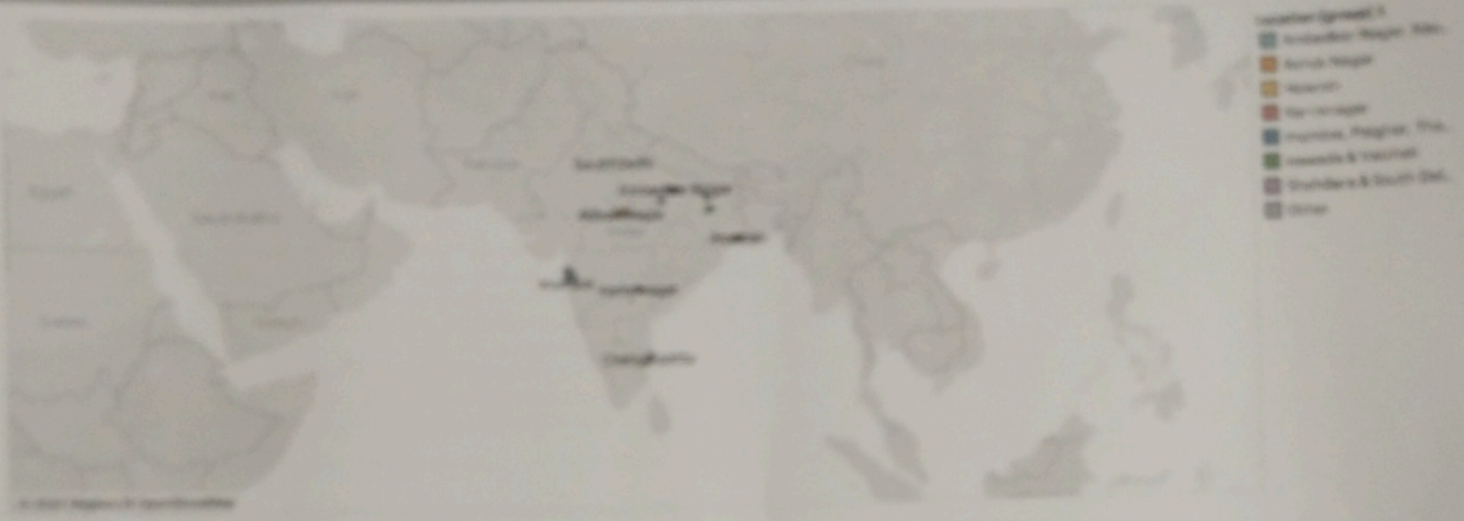

Location
Garia
Noida
Dum Dum
Rajarhat
Tangra
Ulwe
Mira Road East
New Town
Kharghar
Thane West
8B
6B
4B
2B
0B
Price
0
0K
1K
2K
3K
4K
5K
6K
7K
Intercom
No. of Bedrooms
To Null
Price
2B
8B
Intercom
2,754
6,849

Story:

A story is a type of view. A story is Composed of a set of screens that are display in sequence by side to side a story can be used in provide your data with a visual analysis

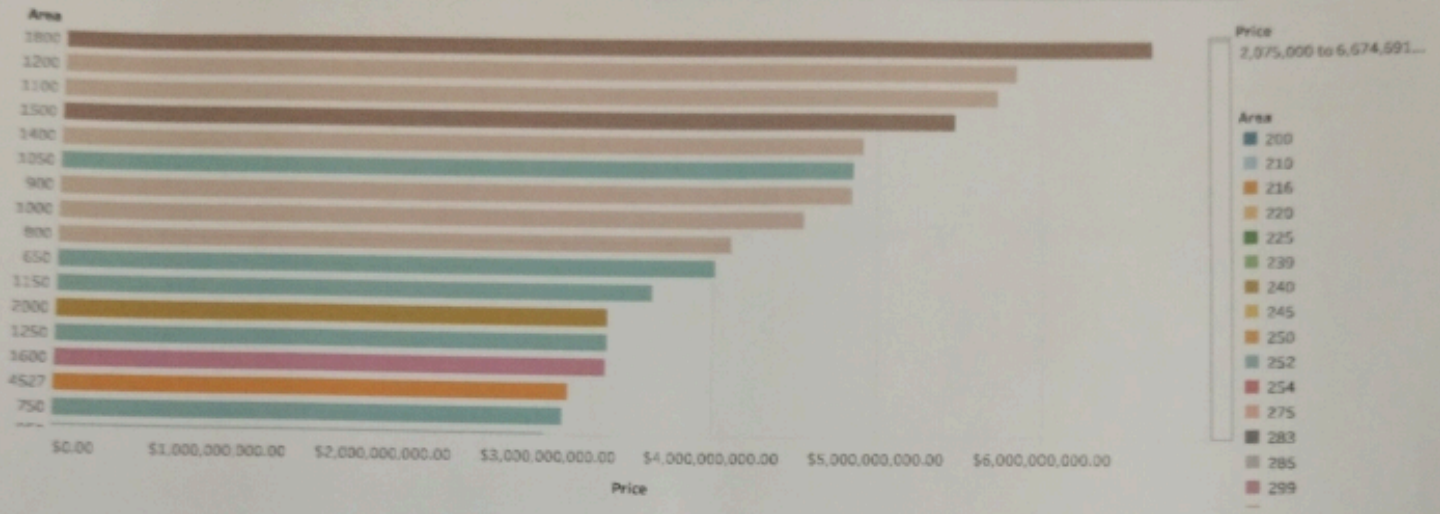
A data analysis story is a narrative Communicates the insights, finding and implications derived from analyzing a dataset or set of data Rather than simply presenting raw numbers or statistical results, a data analysis story aims to Contextualize the data with in a meaningful narrative that resonates with the audience.

House Price Prediction

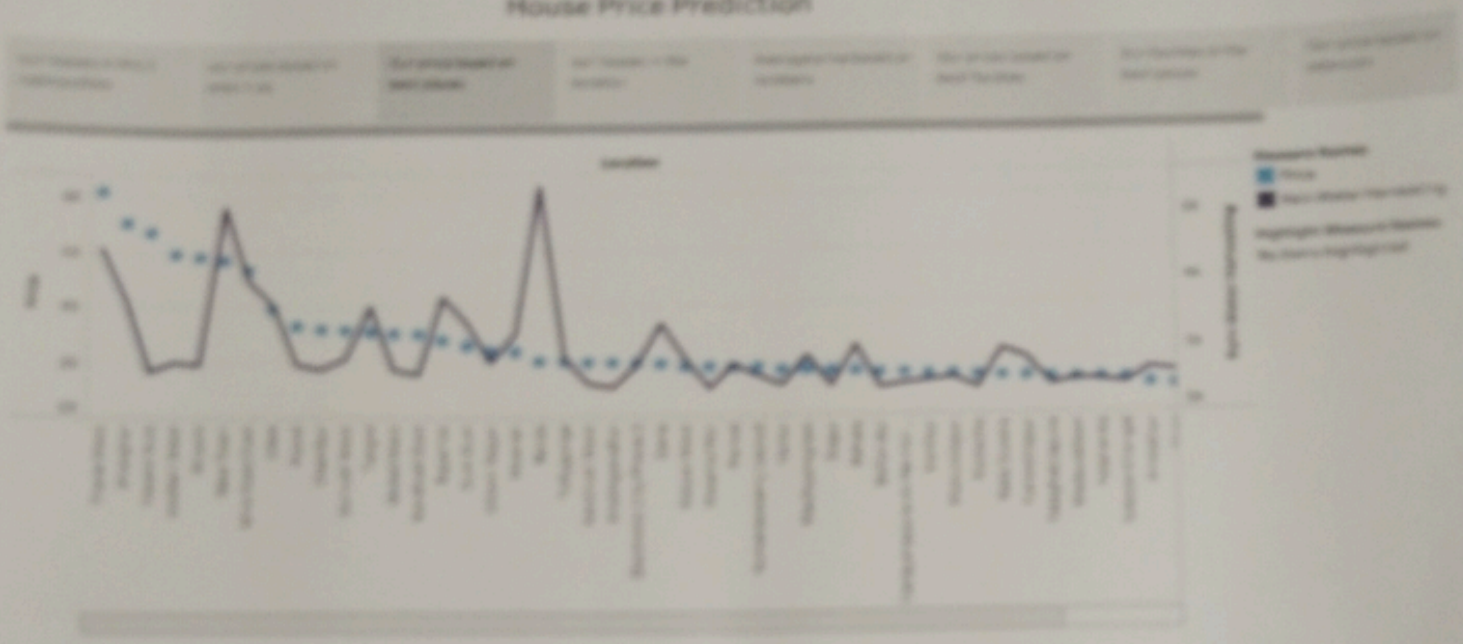


House Price Prediction

our houses in this a metropolitan	our prices based on area in sq	Our price based on best places	our houses in the location	Average price based on numbers	Our prices based on best facilites	Our facilites in the best places	Our price based on intercom



House Price Prediction



House Price Prediction

Our house..

our prices based on area in sq

Our price based on best places

our houses in the location

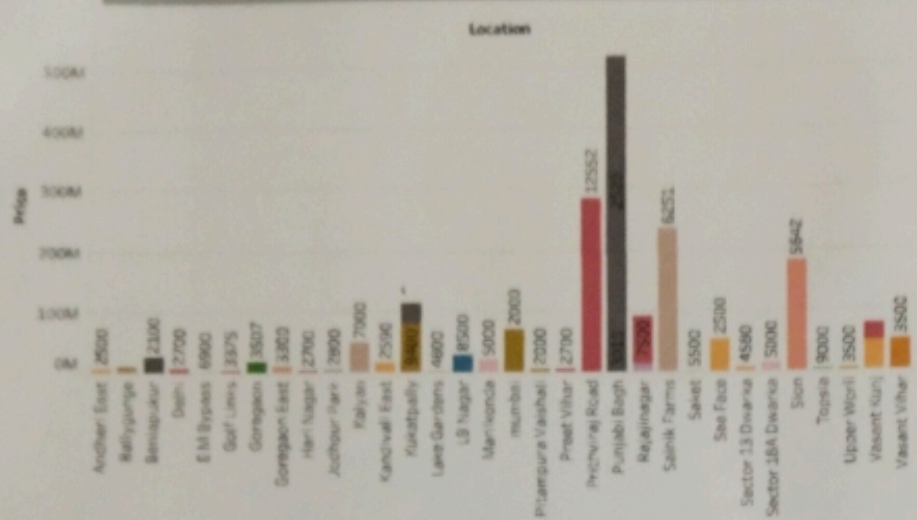
Average price based on numbers

Our prices based on best facilities

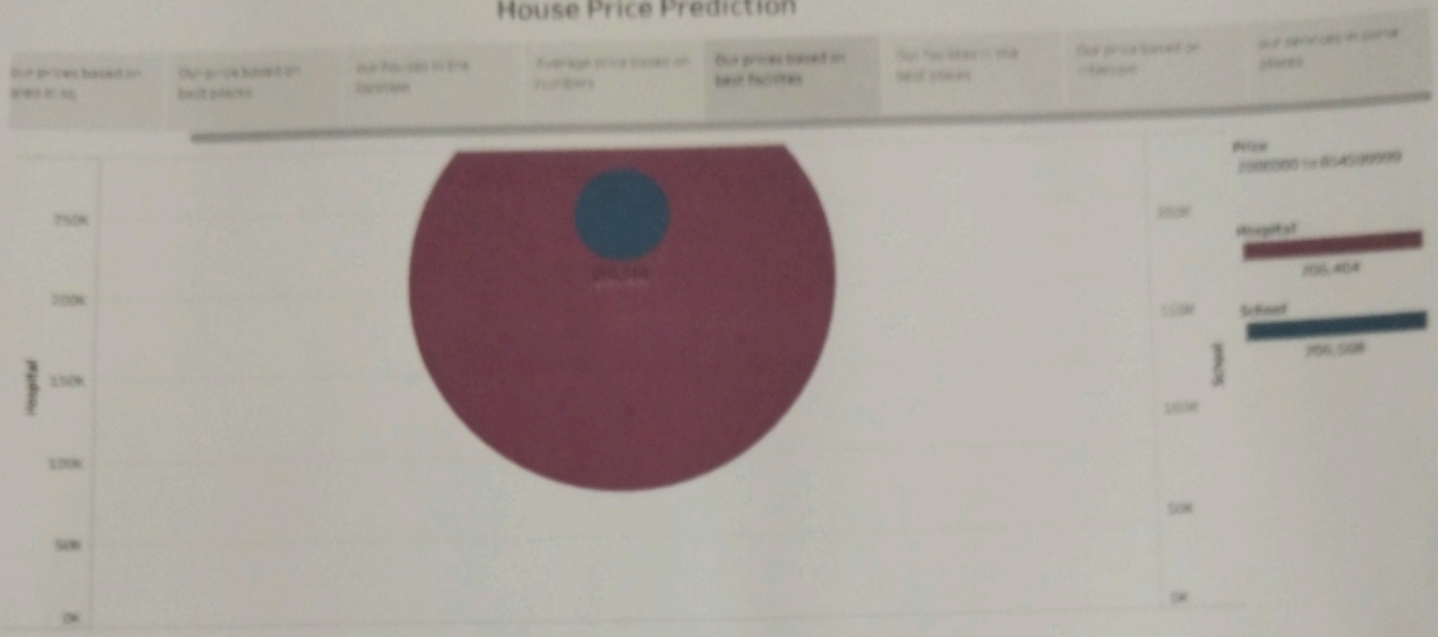
Our facilities in the best places

Our price based on intercom

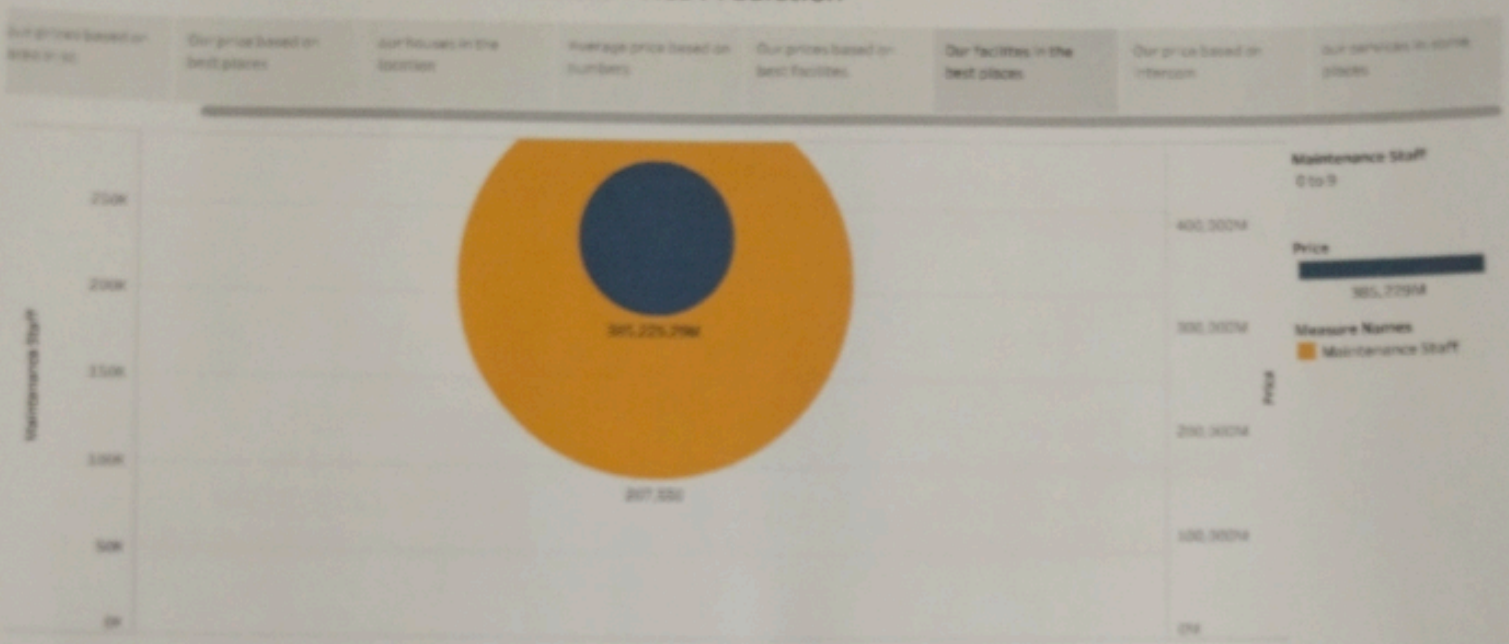
our services i...



House Price Prediction



House Price Prediction

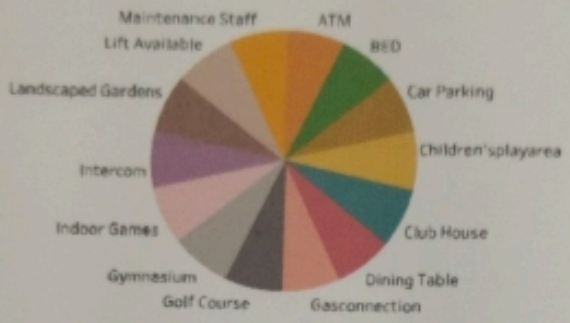


House Price Prediction

our prices based on area in sq | Our price based on best places | our houses in the location | Average price based on numbers | Our prices based on best facilites | Our facilites in the best places | Our price based on intercom | our services in some places

House Price Prediction

Our prices based on area in sq	Our price based on best places	our houses in the location	Average price based on numbers	Our prices based on best facilites	Our facilites in the best places	Our price based on intercom	Our services in some places



Measure Values

2,925,257

Measure Names

- ATM
- BED
- Car Parking
- Children'splayarea
- Club House
- Dining Table
- Gasconnection
- Golf Course
- Gymnasium
- Indoor Games
- Intercom
- Landscaped Gardens
- Lift Available
- Maintenance Staff

ACTIVITY LOG FOR THE FIRST WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day – 1	Module-1: Introduction of Data Analysis ; Types of data Analytics	Basics of : Business intelligence Data Analytics Data visualisations	
Day - 2	Introduction to IBM Cognos Analytics overview & features of IBM Cognos	Connecting Cognos Analytics to Data sources	
Day – 3	Module-2 Working with IBM Cognos Analytics of module 2	Data Modules Data preprocessing Data cleanning Data Relationships	
Day – 4	Module 3: Creating IBM Cognos Account Data Explotation & visulization	Created IBM Cognos account Data Explotations	
Day – 5	Data visulization and quiz on previous topics	learned to Created Bar chart Column chart Line chart	
Day –6	Assignment - 1		

WEEKLY REPORT

WEEK – 1 (From Dt..... to Dt.....)

Objective of the Activity Done: To Create IBM Cognos Account, visualization

Detailed Report: learned about Business intelligence, Data Analytics, types of data analytics: 1. Descriptive Analytics, 2. Diagnostic Analytics 3. predictive Analytics 4. prescriptive Analytics

Business intelligence tools:-

1) Data visualization
2) Data Warehouse and Data types
3) Data Mining
4) Reporting
5) OLTP and OLAP

Created personalized IBM Cognos Account and Connected Cognos Analytics to Data sources. Created Data Modules, data pre processing, data cleaning and data relationship learned and Created data visualization manually Bar chart, Column chart, line chart etc. And also participated in the quiz this Week.

ACTIVITY LOG FOR THE SECOND WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day – 1	holiday		
Day - 2	Creating Data visualizations	learned to Create points chart summary chart Bubble chart	
Day – 3	Creating Data Visualizations	hierarchial bubble chart, pie chart Area chart, heat map Water fall chart	
Day – 4	Creating Data visualization	Table, Cross table, filter drop down, box plot, HPI Scatter Plot	
Day – 5	Presenting Data in Cognos Analytics and quiz on previous topics	Creating Analytical Dashboards Reports, Story	
Day –6	Assignment. 2	Created Dashboards using visualization	

WEEKLY REPORT

WEEK – 2 (From Dt..... to Dt.....)

Objective of the Activity Done: To Create Dashboards, Report, Stories.

Detailed Report: Created Data visualization manually using the uploaded data, Created Summary chart, point, chart, Bubble chart, Hierarchial bubble chart, pie chart, Area chart heat map, waterfall chart, table, Cross table filter drop drown, Box plot, KPI Card, Scatter plot learned to Create Dashboard : After Creating visulization saved and pind them using pinned visulization we Can Create dashboard of our desired templates, Dashboard is a way of displaying various types of visual data in one place learned to Creat story in IBM Cognos:

Story is a visual narrative a story will add differe We Can Create a story by chosing our desired templates. IBM provides slideshow and guided journey template.

learned to Create Report to IBM Cognos, we have to Create new visAualization for reporting, participated in quiz and Completed Assignment of Creating dashbaue.

ACTIVITY LOG FOR THE THIRD WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Module - 5 : python for Data science	Basic of python functions sets Dictionaries	
Day - 2	Data Exploration & visualization using python packages of Module - 6	Working with numpy Working with pandas	
Day - 3	Data Exploration & Visualization using python package	Netpotip plotting Seaborn visualizations	
Day - 4	Holiday		
Day - 5	Module 7 : Supervised learning - Regression and quiz - 3	Predictive Analytics with classification KNN, logistics Regression, svm etc	
Day - 6	Assignment - 3	Creating story and Report on IBM Cognos	

WEEKLY REPORT

WEEK – 3 (From Dt..... to Dt.....)

Objective of the Activity Done: Modules 5, 6, 7

Detailed Report: In this 3rd week we learned module-5 i.e python for Data science there we have learned Basics of python and worked with Data structure Conditional Construction and functions and flow Controles. And then worked on Module 6 i.e, Data Exploration & visualisation with python package, worked with Numpy and pandas Created data visualizations, learned and worked with Matplottib, seaborn & plots and did basic plotting with pandas profiling worked on string function with python for Data science. And then we moved to Module-7 i.e supervised learning: Regression predictive Analysis with Regression and done with Regression Analysis, learned linear Regression Analysis and building predictive models using regression analysis and participated in the quiz-3

ACTIVITY LOG FOR THE FORTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Holiday		
Day - 2	Module 8: Supervised learning classification	predictive Analytics with classification	
Day - 3	Introduction to classification Analysis Building predictive models	KNN, logistic Regression, SVM, Naive - Bayes, Decision Trees & Random forest	
Day - 4	Module 9: Build & Deploy web Application	Different models of deployment building with flask framework	
Day - 5	Integrating Machine learning model with web application and quiz - 4	Embedding Cognos Dashboard, Report & Map with web application	
Day - 6			

WEEKLY REPORT

WEEK - 4 (From Dt..... to Dt.....)

Objective of the Activity Done: Supervised learning classification & Deploy web Application

Detailed Report: In the 4th week of our short term internship we learned Module 8 and Module 9 of our schedule i.e Supervised learning - classification and Build & Deploy web Application. In supervised learning classification of Module 8 we have done with predictive Analytics, Building predictive methods / Models using classification analysis KNN, logistics Regression, SVM, Naive - Bayes Decision tree & Random forest. in Build & Deploy web Application we learned about different modes of deployment, Worked with flask frame work, Building application with flask frame work, integrating Machine learning Model with web application Embedding Cognos Dashboard, Kaptil & Ngrok with web application AND participated in the quiz - 4 on the learned topics.

Conclusion:-

This brings us to end to the house price prediction let us review our work. first we start by defining our problem statement. looking into the algorithms and were going to use and the regression implement through visualization. then we move on to practical implementing the identification. we compared the performance of these models. that proceed that it works best for house price prediction.

The key take aways from this house price prediction is development of urban areas and industries