



Topic 3 : Generate a Planning Application report for a property in Leeds

Group 13:

Jananii Umapathy, Ruoxuan Wang, Shanshan Chen,
Subaru Shimizu, Yili Wang, Yuchi Lai

Background on the Topic

What is a Planning Search/ Planning Report?

A planning search is a detailed investigation into the planning history and current planning context of a property or piece of land.

A Planning Report provides a summary of planning permissions for a property, neighboring properties, and local commercial developments, drawing on the past 10 years of data held by the Local Authority.

Why do I need it?

These searches will provide a home-buyer with information about the surrounding area and any possible development near their dream home. It helps identify potential opportunities and constraints associated with a property, facilitating informed investment and development strategies to make informed decisions.

Who carries out a Planning Search?

- Prospective buyers
- Conveyancing Solicitors
- Real-estate Agents
- Local Authorities.



Background on the Topic

What do they tell you?

A Planning Report typically details any consents or applications for properties within a 250-metre radius.

Key Features:

- Residential and commercial planning applications (both current and proposed), including house extensions and larger projects.
- Descriptions and statuses of planning projects.
- Planning restrictions like Conservation Areas, Green Belt, National Parks, and Listed Buildings.
- Local points of interest, such as transport, recreation, retail, and entertainment venues.
- Data on telecommunication masts and mobile transmitters.
- School performance tables for primary and secondary schools within 2km.
- Local authority details, including tax bands, costs, and contacts.
- Presence of electricity pylons and overhead transmission lines.
- Environmentally Sensitive Site designations.
- Local crime rates.
- Air Quality Management Areas.
- The local authority's planning policies.
- Potential local development areas.



Approach to the challenge

Aim: To produce a report for homebuyers to understand development & infrastructure plans and environment around the property to make better decision.

Identify

- choose a property for sale in Leeds.
- identify specific influential aspects around the property.

Planning Application

Data Merging

filter to get all relevant planning applications within 250m

Plot planning applications on the map and plot data graph

Design questions for chatgpt to extract information provided in the applications and summarize

Generate the planning application part of report content

Environment

Load the Martello Environment + Climate report data (Json)

Design questions for chatgpt to extract information provided in the report and summarize

Generate the environment conditions part of report content

Report Preparation

Generate HTML report

- Give a brief introduction of this property.
- Analyze the development & infrastructure plans and environment thoroughly.
- Summarize for homebuyers to accurately and quickly understand the overall potential of this property.

Data used

Planning Application of Leeds:

Detailed description of planning application

Domain	Useful Column	Description	Source
Planning Application	proposal	<ul style="list-style-type: none">Details the planning application's specifics, highlighting the project's goals and what it aims to achieve.	Leeds.GOV.UK
	category	<ul style="list-style-type: none">Categorizes the application into broader sectors, indicating the type of development.	
	heading	<ul style="list-style-type: none">A quick summary or title of the application, indicating the project's nature.	
	value_max	<ul style="list-style-type: none">The highest estimated value of the development, reflecting its economic impact and scale.Ranges from 100 to 90,000.	
	number	<ul style="list-style-type: none">The count of housing units proposed, important for residential projects.Over 99% of entries with numbers in "heading" fall under "Residential", "New Build", "Other", "Extension/Renovation".Less than 1% are in "Education", "Agriculture" categories.	
	stage	<ul style="list-style-type: none">Shows the current status of the planning application within the approval process.	
	centroid_geom	<ul style="list-style-type: none">The geographical center point of the application site, useful for location analysis.	

Data used

Martello Environment + Climate report for the property:

Provide the proposal of suitability for new construction and the results of 8 types of environmental impact factors at Whitehall Waterfront

Domain	Useful Column	Description	Source
Environment & Climate	Contaminated Land	<ul style="list-style-type: none">Whether there is landfill, Fuel Stations, Contaminated Land or other facilities causing pollution nearby	Martello Environment + Climate report for the property
	Flood Risk	<ul style="list-style-type: none">Determine whether the area is at risk of flooding based on Fluvial (undefended), Pluvial, etc.	
	Planning Constraints	<ul style="list-style-type: none">Whether the location restricts some plannings.	
	Radon	<ul style="list-style-type: none">Radon Action Area	
	Transportation	<ul style="list-style-type: none">Any transportation lines nearby	
	Energy and Infrastructure	<ul style="list-style-type: none">Any Energy and Infrastructure nearby	
	Ground stability	<ul style="list-style-type: none">Ground condition	
	Climate Change	<ul style="list-style-type: none">Any potential for environmental risks at this location due to climate change	

Methods

How do we create the ChatGPT prompt?

- Set the Role
- Input the Data
- Establish Clear Objectives
- Specify Additional Requirements

Note: Different highlight colors mean different prompt procedure

```
1 response = openai.ChatCompletion.create(
2     model="gpt-3.5-turbo",
3     messages=[
4         {
5             "role": "system",
6             "content": f"""
7             As a Real Estate Analyst, your task is to analyze the approval statuses of planning applications within
8             a 250-meter radius of a specified property in Leeds. Your analysis will focus on identifying the most common
9             approval status and highlighting the key 'Detailed Plans Approved' applications with significant potential
10            impacts on the Leeds property area. This summary should provide potential homebuyers with insights into the
11            developmental activity and momentum in the area, helping them understand what this implies for their property
12            investment decisions. Ensure your summary is concise, relevant, and based strictly on the provided dataset.
13
14            - Summarize the most common approval status among the planning applications and the number of applications with
15            this status.
16
17            - Provide a bullet-point summary of the top 'Detailed Plans Approved' planning applications, focusing on those
18            with the largest scale or importance in terms of residential growth, commercial expansion, or infrastructure
19            improvements, and based strictly on the provided dataset: {df3_str}.
20            """,
21
22             "role": "user",
23             "content": """Based on the provided dataset, what is the most common approval status for planning applications
24             near the Leeds property, and can you summarize the key 'Detailed Plans Approved' applications that could
25             significantly impact the property's value and attractiveness? Please present the information in bullet points
26             for clarity."""
27         }
28     ],
29     temperature=0,
30     max_tokens=250,
31     top_p=1
32 )
33
34 ans_approvalstatus = response["choices"][0]["message"]["content"]
35
36 print(ans_approvalstatus)
```

← Ensure consistency in the responses, avoiding any information not derived from the provided dataset.

← Short Paragraph

Solutions

Homebuyer's Brief

I'm considering buying a house at Whitehall Waterfront (2 Riverside Way, Leeds LS1 4EE) and would like to know if it's a good location for a purchase.

Location: <https://maps.app.goo.gl/5nN253JgTacSRw1o6>

The current property at this location:



3 bed. flat for sale
The Leeds Apartments

£405,000



2 bed. flat for sale
The Leeds Apartments

£320,000



1 bed. flat for sale
The Leeds Apartments

£230,850



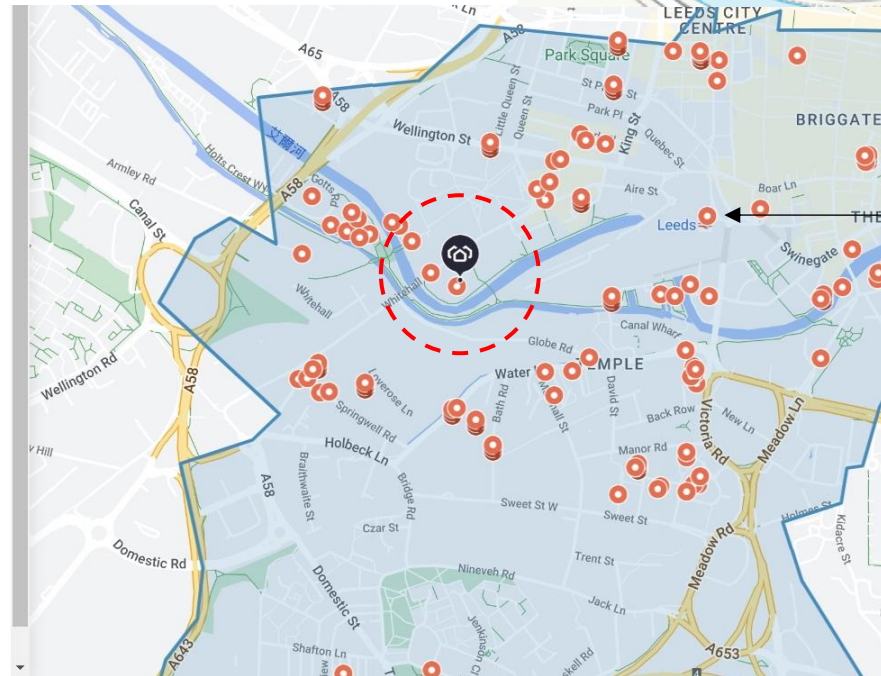
1 bed. flat for sale
The Leeds Apartments

£219,000



1 bed. flat for sale
The Leeds Apartments

£214,000



Leeds Train Station



Solutions

Information from planning applications that would interest homebuyers

- Residential
- Commercial
- Infrastructure
- Education
- Sport and Leisure
- Other

Types

Approval Status

- Outline Plans Approved
- Detailed Plans Submitted
- Detailed Plans Approved
- Withdraw

Economic Values

High, medium, or low value?

Overall trend

Booming?
Stagnant?

Geographical Distribution

Clustered or dispersed?



Solutions

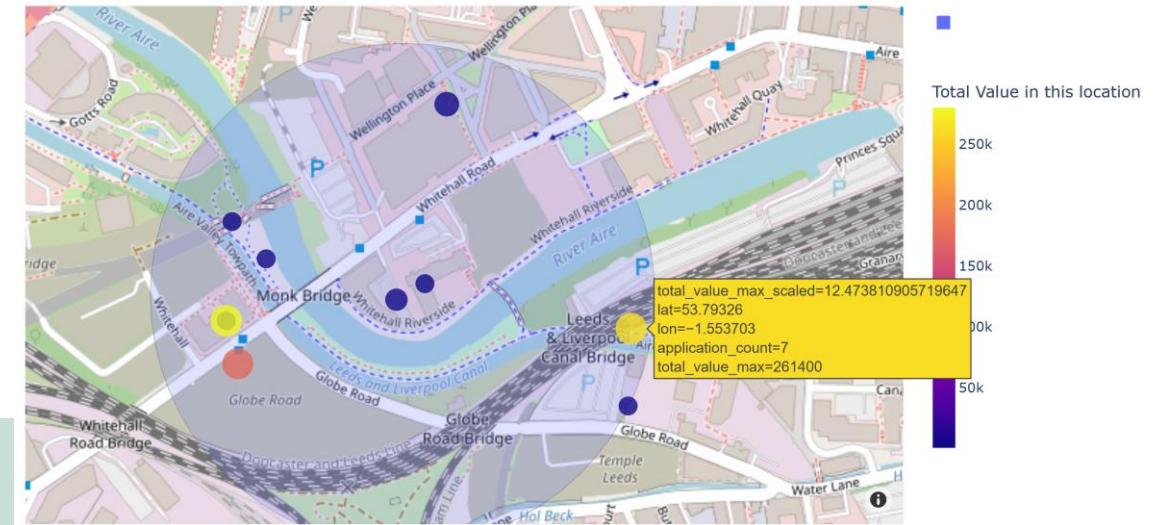
1.1 Planning Application - Overall trend

What is the overall trend of planning applications in this area?



- The area shows a significant trend towards mixed-use developments, combining residential units with commercial spaces.
- There is a notable focus on repurposing existing structures, such as offices being converted into apartments or educational facilities.
- Infrastructure enhancements like car parks, landscaping, and external facilities are also prominent in the planning applications within the vicinity.

Planning Application Geographical Distribution



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1.2 Planning Application - Types of planning application

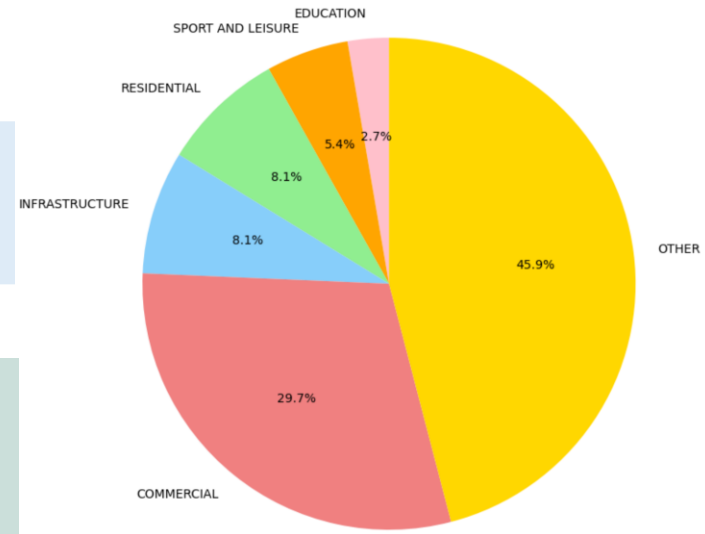
What is the most common type of planning applications in this area?

Could you summarize what these applications typically propose?



- The most commonly seen type of planning applications near the Leeds property are **Commercial Developments**.
- These applications entail the construction of **new office buildings**, including associated facilities, parking, and landscaping, as well as **the development of mixed-use buildings** with flexible commercial uses on the ground floor and offices on upper floors.
- The area shows a trend towards **enhancing commercial spaces**, indicating potential growth in business activities and employment opportunities in the vicinity.
- Homebuyers can expect to see more modern office spaces, which could contribute to the overall appeal and vibrancy of the neighborhood.

Specific Types of Planning Applications

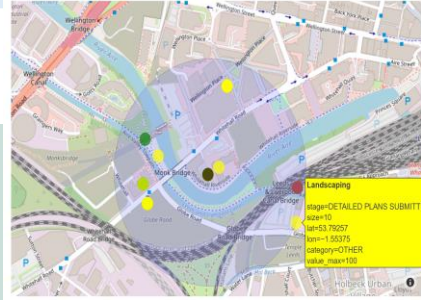


Solutions

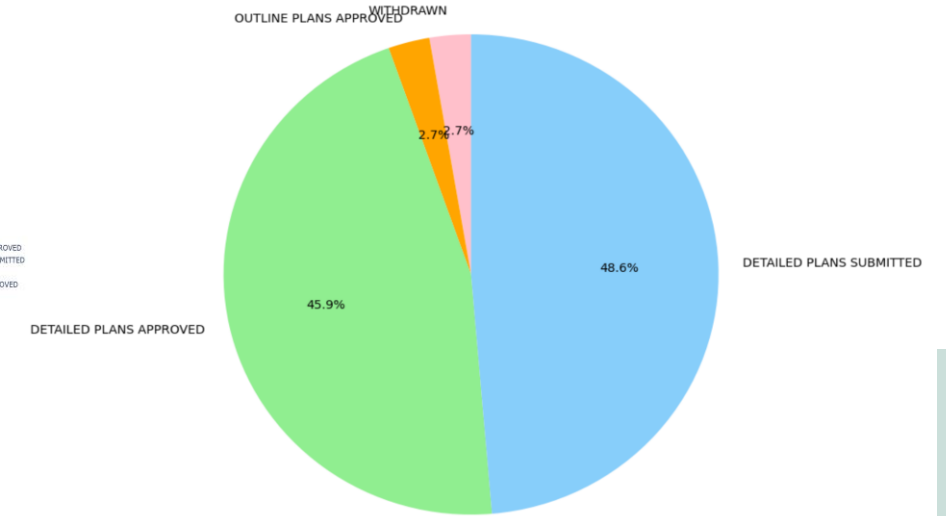
1.3 Planning Application - Approval Status of planning application

What is the most frequent approval status for planning applications in this area?

Please highlight the most significant 'Detailed Plans Approved' applications



Status of Planning Application



- The most common approval status for planning applications near the Leeds property is **'Detailed Plans Approved'**.
- **Key 'Detailed Plans Approved' applications** that could significantly impact the property's value and attractiveness include:
 - Construction of **new shopping center** with high-end retail stores and restaurants
 - Development of **a new park** with walking trails and recreational facilities
 - Renovation of nearby historic buildings into **luxury apartments**
 - **Expansion of public transportation infrastructure** with a new bus stop and bike lanes
 - Construction of a **new school** with modern facilities and green spaces.



Solutions

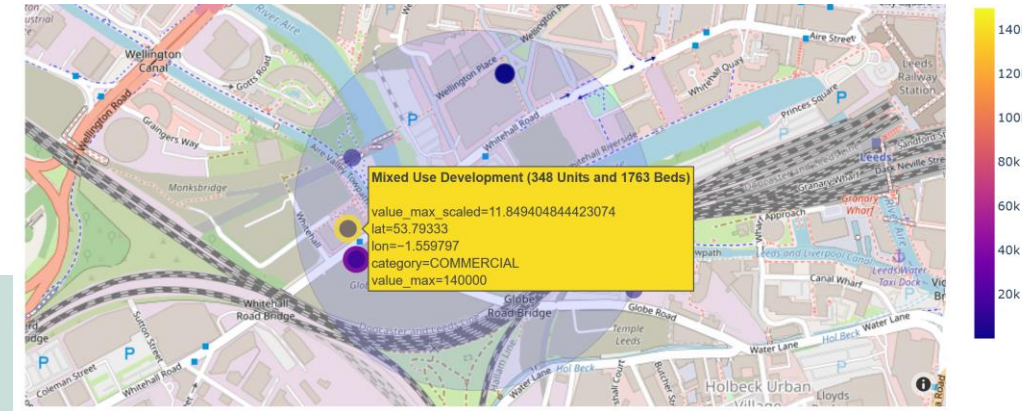
1.4 Planning Application - Economic Values of planning application

Which Economic Value category has the most planning applications, and what are the main types of projects within this category?
Can you describe their characteristics?

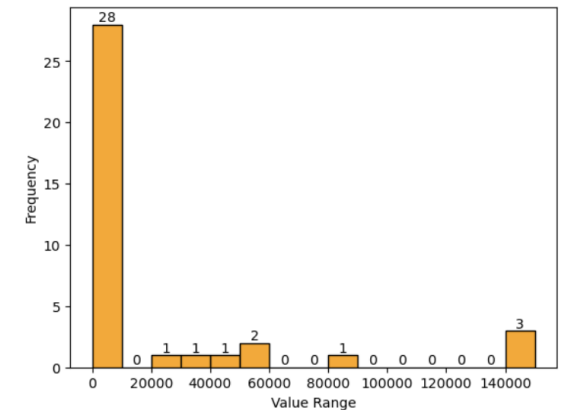


- **Predominant Economic Value Category :**
Commercial
- **Value Range :** £10,000 - £150,000
- Main Types of Planning Applications:
 - Office Developments
 - Mixed-Use Developments
 - Landscaping Projects
 - Infrastructure Installations
 - Demolition Projects
- Commercial developments, ranging from office buildings to mixed-use developments, dominate the planning applications near the Leeds property. These applications indicate a **significant trend towards enhancing commercial infrastructure and amenities in the area, reflecting a growing economic landscape and potential for increased business activities and job opportunities.**

Value distribution of Planning Application



Frequency of Different Value Range of Planning Applications around Property



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1.4 Planning Application - Economic Values of planning application

What are the top three high-value planning applications closest to the property I'm interested in Leeds, and how could they affect its appeal and value?



Based on the dataset provided, the top three unique planning applications nearest to your property in Leeds, considering both distance and economic value are as follows:

1. Planning ID: 15244870
 - Development Type: Mixed Use Development (348 Units and 1763 Beds)
 - Economic Value: £140,000.00
 - Distance: 176.62 meters
 - Description: Construction of new buildings for residential, purpose-built student accommodation, and commercial uses, along with landscaping and associated infrastructure improvements.
 - Potential Impact: This significant mixed-use development can enhance the neighborhood by introducing a diverse range of residential units and commercial spaces...
3. Planning ID: 15308808
 - Development Type: Landscaping
 - Economic Value: £100.00
 - Distance: 194.63 meters

...

These unique planning applications represent significant developments in proximity to your property, each with the potential to positively impact the neighbourhood's value and attractiveness, thereby influencing the appeal of your property to potential homebuyers.

Solutions

1.5 Planning Application - Summary

Based on the analysis, is it recommended to purchase a house in this area of Leeds?



Recommendation:

Considering the diverse mix of developments, focus on commercial projects, and significant approved planning applications nearby, buying a house in this Leeds area is recommended. **The area's transformation towards vibrant mixed-use neighborhoods with enhanced amenities and commercial spaces could potentially increase the property's value and appeal to homebuyers.** Keep an eye on the ongoing and upcoming developments to leverage the positive changes in the neighborhood for potential future gains.

Methods

How do we get chatGPT to read .json document content?

- **Define problem and premise**
- **Gets data from the given JSON file address**
- **Building result**

```

In [41]: # 3-8. Climate change
# Define problem
question_climate_change = "Please provide information about Climate change impact on this area in simple terms"

# Add premise
premise_climate_change = "All information you read is based on the potential impacts on a property."

# Gets data from the given JSON file address
json_url = "https://my.martello.app/shared/64b3a542-7166-4132-a5e0-72d88f6fa4c8.json"
response = requests.get(json_url)
data = response.json()

# Fetch information of Climate change impact
comments_climate_change = []
for category in data["categories"]:
    for section in category["sections"]:
        if "comment" in section:
            comments_climate_change.append(section["comment"])

# Tips for building problems
prompt_climate_change = f"{premise_climate_change}\n\n{question_climate_change}\n\nHere are the details about the Climate change impact in the area:\n{' '.join(comments_climate_change)}" if comments_climate_change else f"{premise_climate_change}\n\n{question_climate_change}\n\nThere is no comment available for Climate change impact in the area."

# Building conversation history
messages_climate_change = [
    {"role": "system", "content": "System: " + prompt_climate_change},
    {"role": "user", "content": ""} # Triggers the dialogue model to generate an empty user message in response
]

# Answer questions using the GPT model
response_climate_change = openai.ChatCompletion.create(
    model="gpt-3.5-turbo", # Using the dialogue model
    messages=messages_climate_change,
    temperature=0.7,
    max_tokens=1500,
    top_p=1,
    frequency_penalty=0,
    presence_penalty=0
)

# Store the result in a new variable
answer3_8 = response_climate_change["choices"][0]["message"]["content"]
answer3_8 = answer3_8.replace('\n', '\n')
answer3_8

```

```
Out[41]: 'The area is not directly impacted by significant climate change hazards such as flooding, sea level rise, or extreme weather events. The property is also not near any environmentally hazardous sites like landfills, petrol stations, or industrial areas. Overall, the area seems to be relatively safe from major climate change impacts based on the information provided.'
```


Solutions

2. Environmental impact factors -Summary

Summarize the environment of this property?



Contaminated Land

Flood Risk

Planning Constraints

Radon

Transportation

Energy and Infrastructure

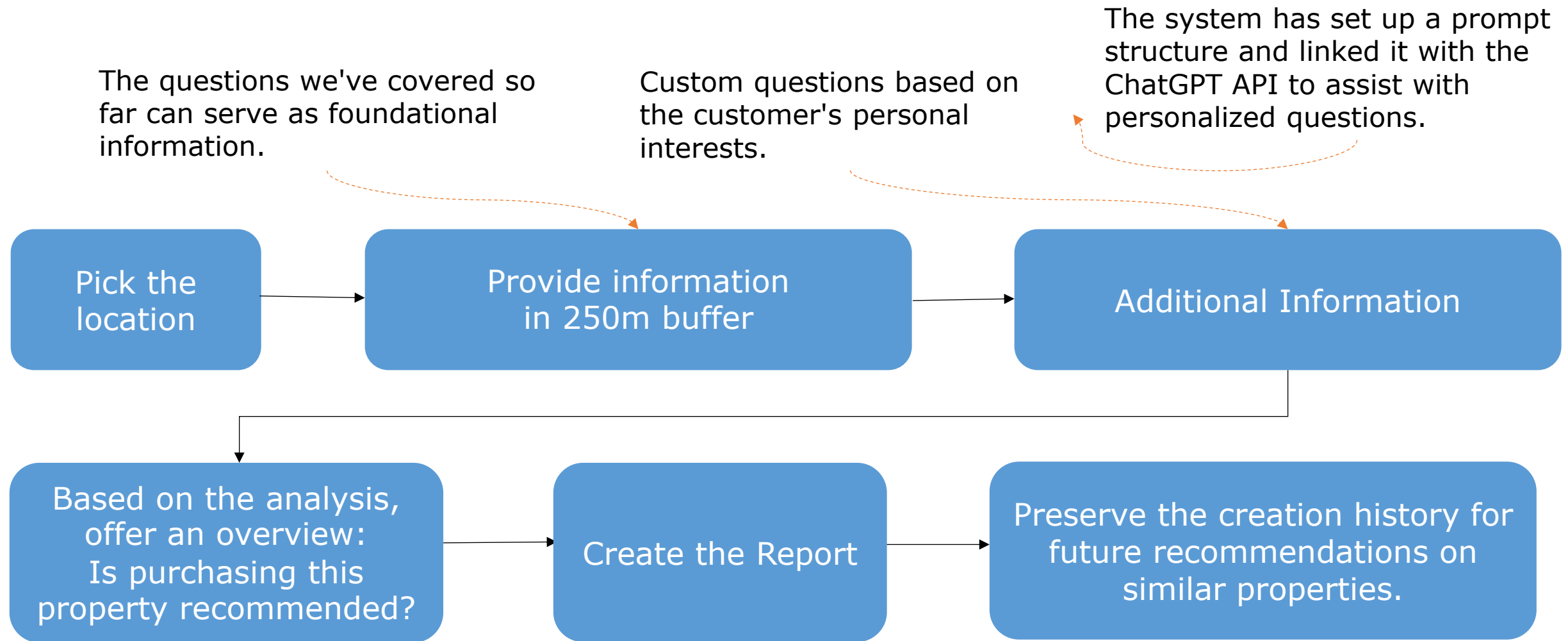
Ground stability

Climate change

- The property is located in an area that is considered relatively safe from various environmental hazards such as landfills, pollution incidents, flood risks, and industrial sites.
- It is not near any significant environmental risks such as flood zones, protected areas, or hazardous material sites. The property is also not at risk of sea water inundation before 2100. Additionally, there are no major concerns regarding ground conditions or ground movement in the area.
- It is advisable to check the property's Energy Performance Certificate (EPC) for information on its energy efficiency.

Ideas for future

Make the process as a System to help the homebuyer make the decision



Contributions of each member

Prepare data: Subaru Shimizu

Literature Review (background): Jananii Kolathur Umapathy

Coding (main dataset): Yuchi Lai, Shanshan Chen

Coding (json): Ruoxuan Wang , Yili Wang

Coding (making summary as html): Subaru Shimizu, Jananii Kolathur Umapathy

Making slides: Shanshan Chen, Yuchi Lai, Yili Wang

Speech: Ruoxuan Wang , Yili Wang, Jananii Kolathur Umapathy

Reference

- Groundsure. Planning. [Online]. [Accessed 7 March 2024]. Available from: <https://www.groundsure.com/products/planning-product-card/>
- Sam Conveyancing. 2022. What is a Planning Report?. [Online]. [Accessed 7 March 2024]. Available from: <https://www.samconveyancing.co.uk/news/conveyancing/planning-report-plansearch-plus-146#:~:text=A%20Planning%20Report%20delivers%20planning,developments%20in%20the%20local%20area.>
- Local Conveyancing Direct. What is a Planning search and why do I need it?. [Online]. [Accessed 7 March 2024]. Available from: <https://www.localconveyancingdirect.co.uk/what-a-planning-search-and-why-do-i-need-it#:~:text=You%20are%20here%3A%20What%20is,and%20the%20type%20that's%20possible.>



Thank you!