Introduction to
Robotic Process Automation

Title of the Project

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Abstract

The "Real Estate Automation Using RPA" project is designed to transform the process of collecting, organizing, and analyzing property data from online real estate platforms. By leveraging Robotic Process Automation (RPA) technologies, this system automates the extraction of key property details such as pricing, the number of bedrooms, bathrooms, square footage, and addresses. The extracted data is then categorized and consolidated into structured Excel sheets based on user-provided location inputs, enabling seamless organization and analysis.

This automation eliminates the need for manual data collection, significantly improving efficiency, accuracy, and reliability. The solution ensures scalability by handling large volumes of property data while maintaining data integrity. Designed for use by real estate professionals, researchers, and potential buyers, the system facilitates faster decision-making by providing well-structured datasets tailored to specific locations. Through the integration of RPA, the project underscores the potential of automation in streamlining complex and time-intensive processes, reducing errors, and enhancing overall productivity.

Need for the Proposed System

▪The proposed **Automated Real Estate Scraping Bot** leverages **Robotic Process Automation (RPA)** to streamline and automate the process of property data extraction, categorization, and management. It eliminates the manual effort involved in gathering and organizing property listings, ensuring efficiency and accuracy for real estate professionals.

▪**Key Features:**

- **Automated Property Data Collection:**
  Automatically scrapes property details (price, number of bedrooms, bathrooms, square footage, and address) from **Zillow.com** based on location inputs.
- **Excel-Based Output Management:**
  Organizes the scraped property details into a well-structured Excel sheet. Listings are categorized dynamically based on location, providing better clarity and usability.
- **Data Categorization and Aggregation:**
  Groups properties by location in the Excel sheet and ensures key details are updated under relevant columns such as **"Price," "Bedrooms," "Bathrooms," "Square Footage," and "Address.“**
- **Automation of Repetitive Tasks:**
  Significantly reduces manual intervention in property data management, minimizing errors and saving time.
- **Scalable Solution:**
  Capable of handling large volumes of listings across multiple locations, making it suitable for growing real estate needs.

Advantages of the Proposed System

1. Time Efficiency

- Automates the process of navigating websites, extracting data, and organizing it, saving considerable time compared to manual methods.
- Handles large volumes of data across multiple locations quickly and effectively.

2. Accuracy and Consistency

- Reduces the risk of human error in data collection and organization.
- Ensures consistent formatting and categorization of property details like price, bedrooms, bathrooms, and addresses.

3. Scalability

- Can manage large datasets and scrape data for multiple locations or extensive property listings without additional effort.
- Easily adaptable to increasing requirements as business needs grow.

4. Cost Efficiency

- Reduces the reliance on manual labor for repetitive tasks, lowering operational costs.
- Offers a one-time investment in bot development with ongoing cost savings through automation.

5. Timely Updates

- Automates periodic scraping, ensuring the data is always up-to-date.
- Provides users with real-time information on property listings and market trends.

6. Enhanced Productivity

- Frees up real estate professionals to focus on strategic tasks, such as client management and market analysis, rather than data collection.

7. Organized Data Management

- Outputs data in well-structured formats, such as categorized Excel sheets, making analysis and reporting straightforward.
- Facilitates easy filtering, sorting, and retrieval of property details based on specific requirements.

Main Objective

▪The primary objective of the Automated Real Estate Data Extraction project is to develop a robust, automated system for efficiently collecting and organizing property data by:

- Extracting key property details such as price, square footage, number of bedrooms, bathrooms, and addresses.
- Categorizing and organizing data based on user-defined location inputs.
- Consolidating the extracted data into structured Excel sheets for easy analysis and reporting.
- Minimizing manual effort, reducing errors, and improving operational efficiency in the data collection process.
- Enhancing scalability and accuracy to handle large volumes of real estate data seamlessly.

Components

1. **Location Input Module**

   - **Purpose**: Accepts a location (e.g., city, ZIP code) as input for the search.
   - **Implementation**: Utilizes UiPath's Input Dialog activity or argument-based inputs.

2. **Web Navigation Module**

   - **Purpose**: Automates the navigation to Zillow's website and performs the search based on the provided location.
   - **Implementation**: Uses Open Browser, Type Into, and Click activities to interact with Zillow's search bar.

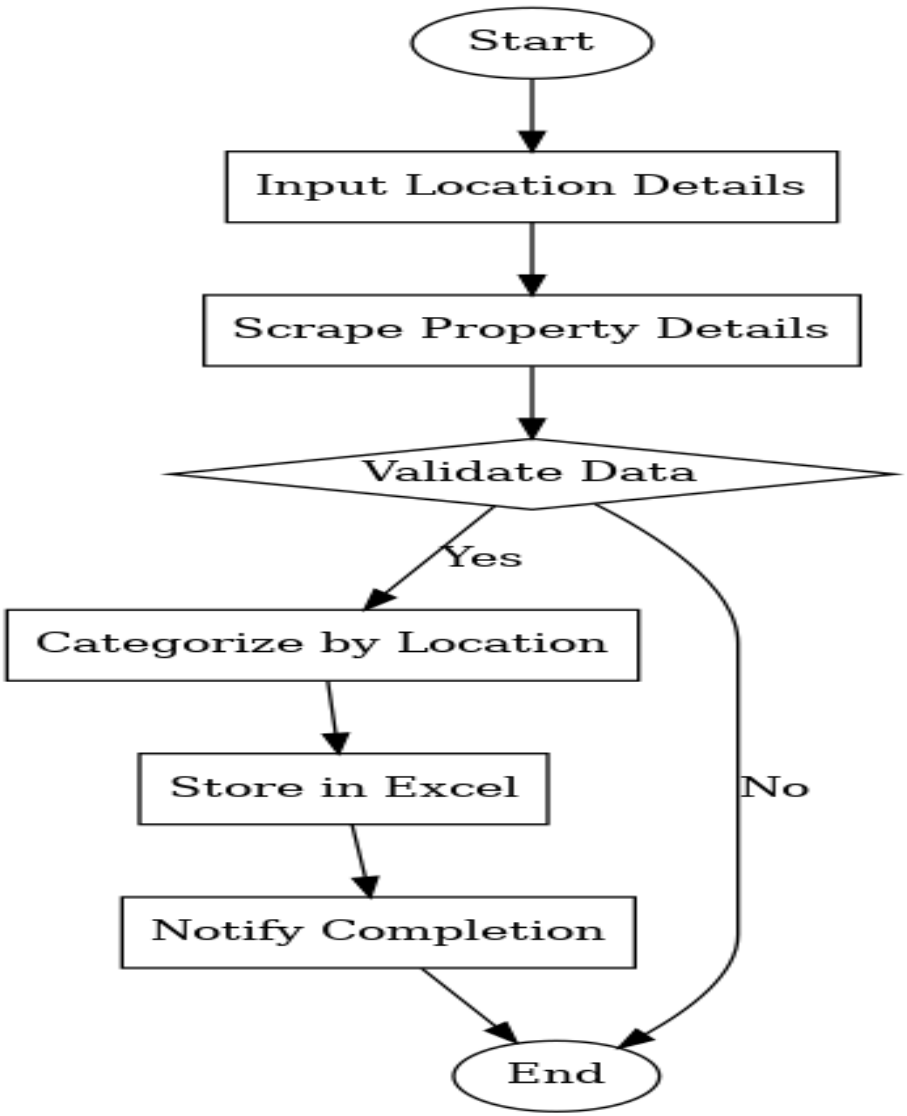
3. **Data Scraping Module**

   - **Purpose**: Extracts property details such as price, number of bedrooms, bathrooms, square footage, and address.
   - **Implementation**: Uses the Data Scraping Wizard and custom selectors for structured and paginated data extraction.

Components

1. **Pagination Module**
    - **Purpose**: Ensures the bot navigates through multiple pages of search results to gather all listings.
    - **Implementation**: Configures the Next button using UiPath selectors and loops through pages until no further listings are available.
2. **Data Categorization Module**
    - **Purpose**: Organizes the scraped data into an Excel file, categorizing entries by location.
    - **Implementation**: Uses Write Range activities in Excel Application Scope to create structured sheets or columns.

Flow chart


Start
Input Location Details
Scrape Property Details
Validate Data
Yes
No
Categorize by Location
Store in Excel
Notify Completion
End

Literature Survey

Paper 1-Real Estate Web Scraping using UiPath in RPA

- **Advantages:**

1. **Automation of Repetitive Tasks**: UiPath streamlines the process of collecting data from real estate websites, saving significant time compared to manual efforts. This includes scraping property details like prices, locations, and amenities efficiently
2. **Accuracy and Consistency**: By using structured data extraction features in UiPath, the process eliminates human errors, ensuring more reliable and consistent data output.
3. **Scalability**: UiPath can handle large-scale web scraping tasks, including multi-page data collection, making it suitable for analyzing multiple real estate platforms simultaneously.

- **Disadvantages**

1. **Dynamic Website Challenges**: Real estate websites often have dynamic content and anti- scraping mechanisms, requiring advanced selectors and potential adjustments to workflows if website structures change

Paper 2-Web Scraping for Data Automation

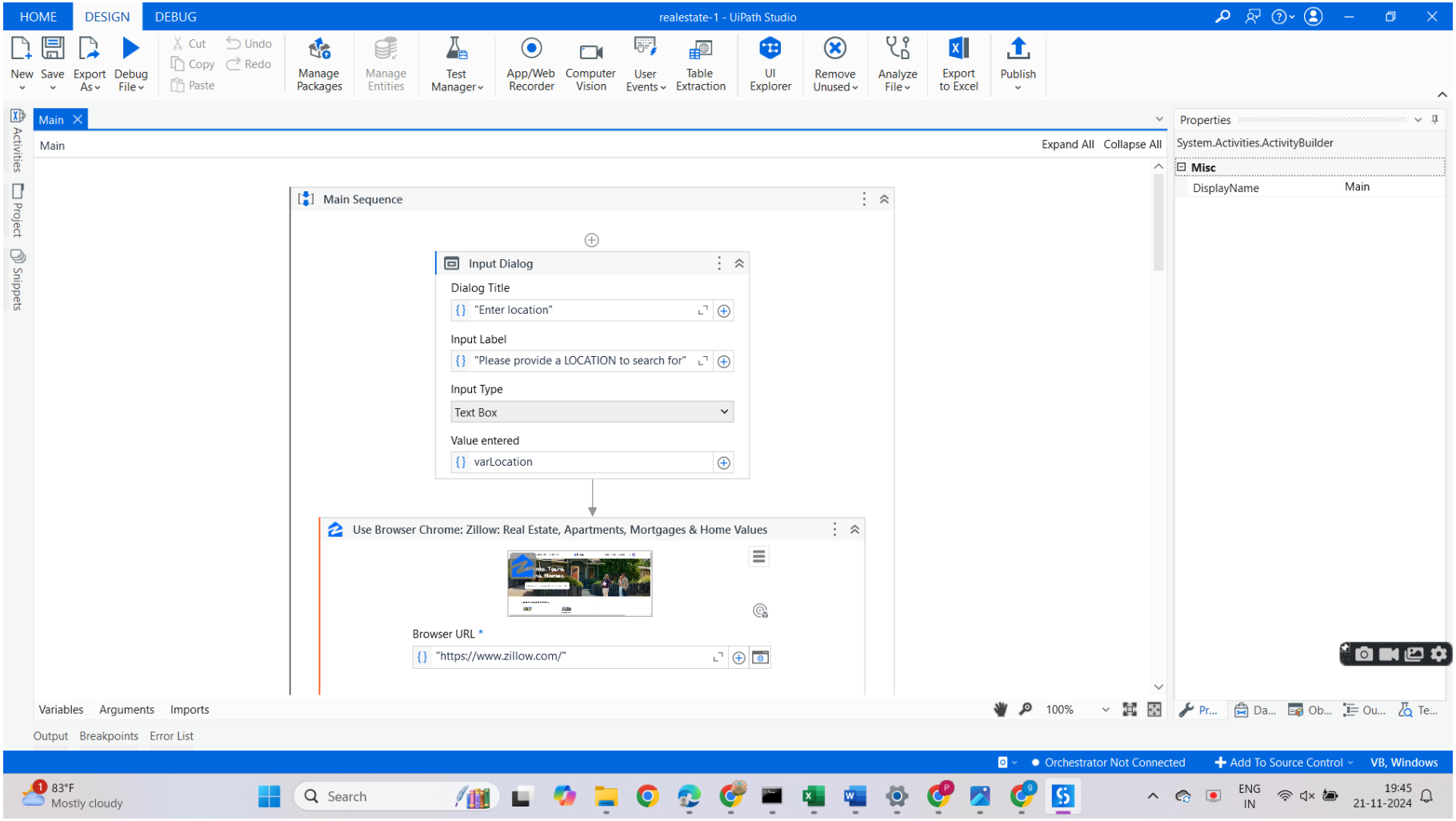
- **Advantages:**

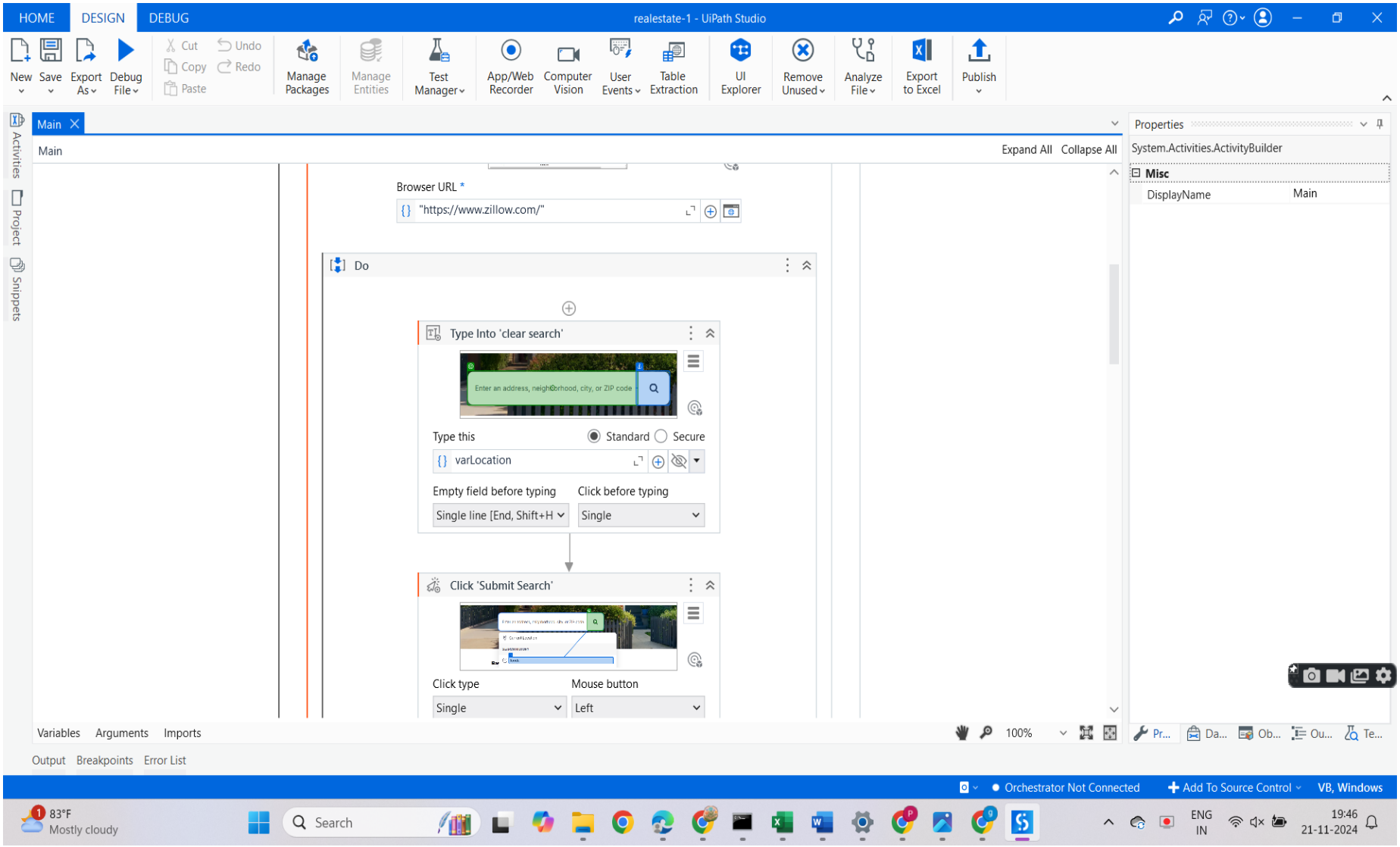
1. **Data Availability**: Offers vast access to online information for analysis, such as real estate pricing trends or customer reviews, from numerous websites efficiently
2. **Time and Cost Efficiency**: Automates repetitive tasks like data collection, saving time and reducing manual effort

- **Disadvantages:**

1. **Ethical Concerns**: May lead to copyright infringement or unauthorized use of scraped data

Screenshots:

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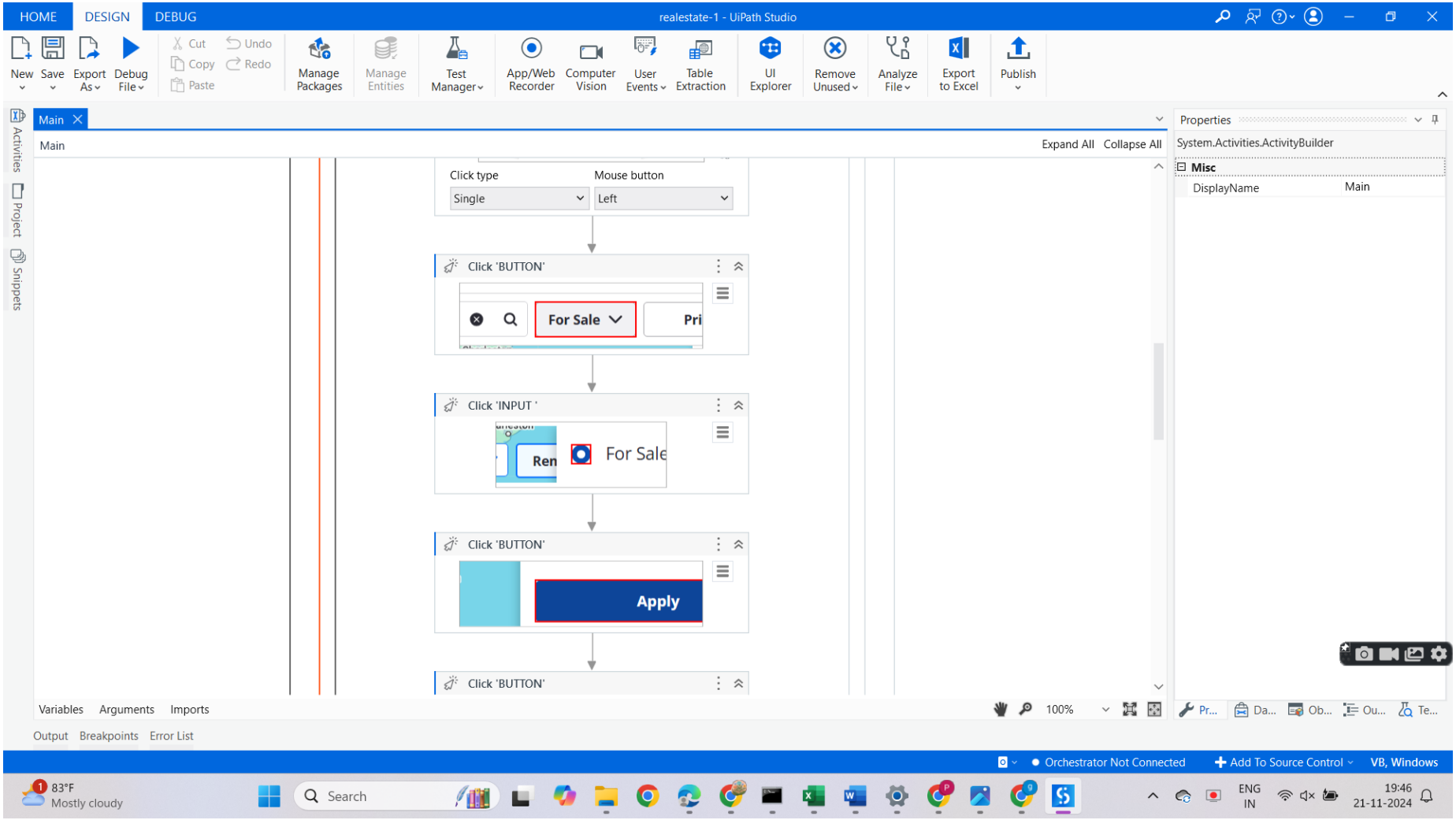
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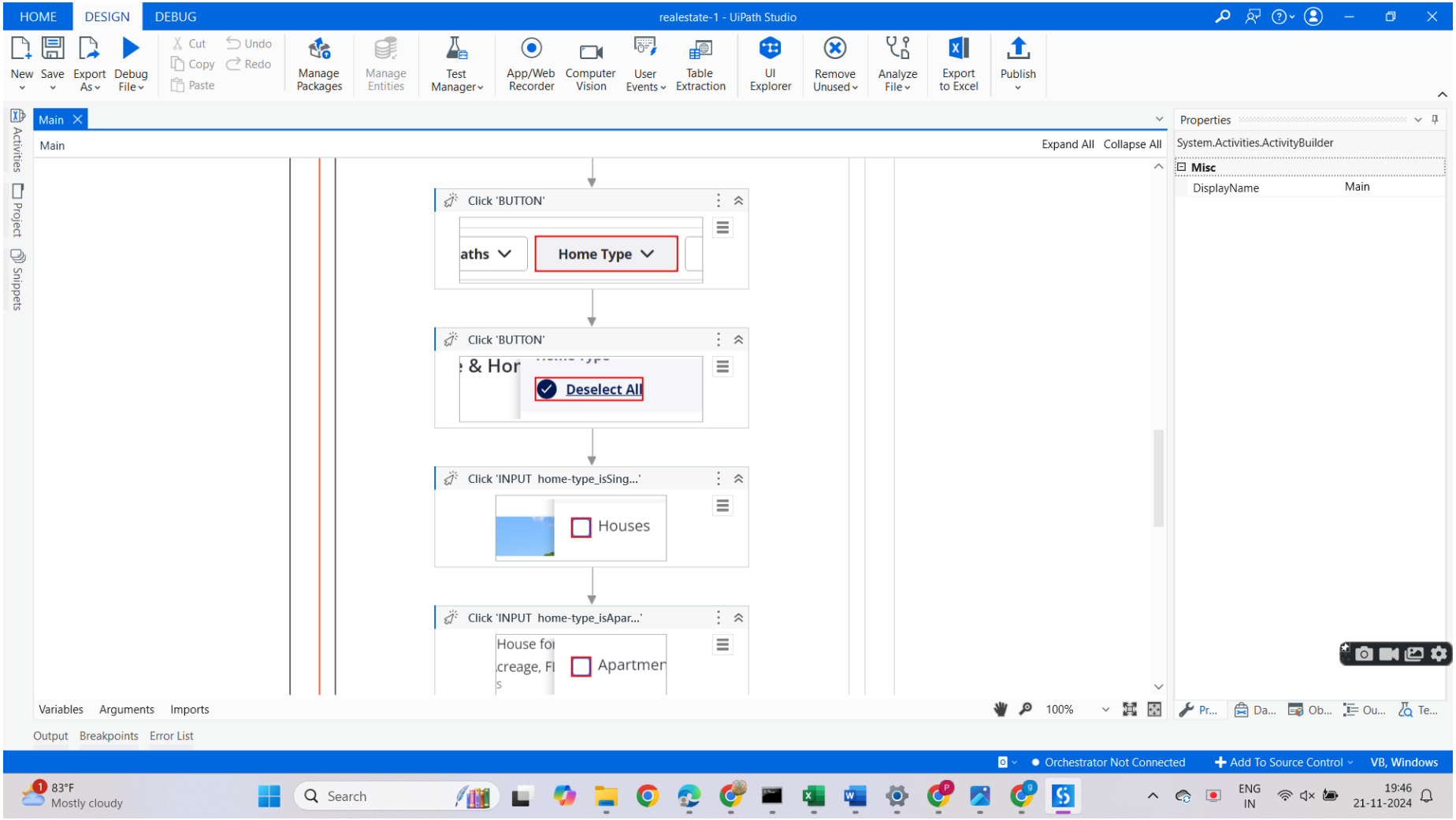
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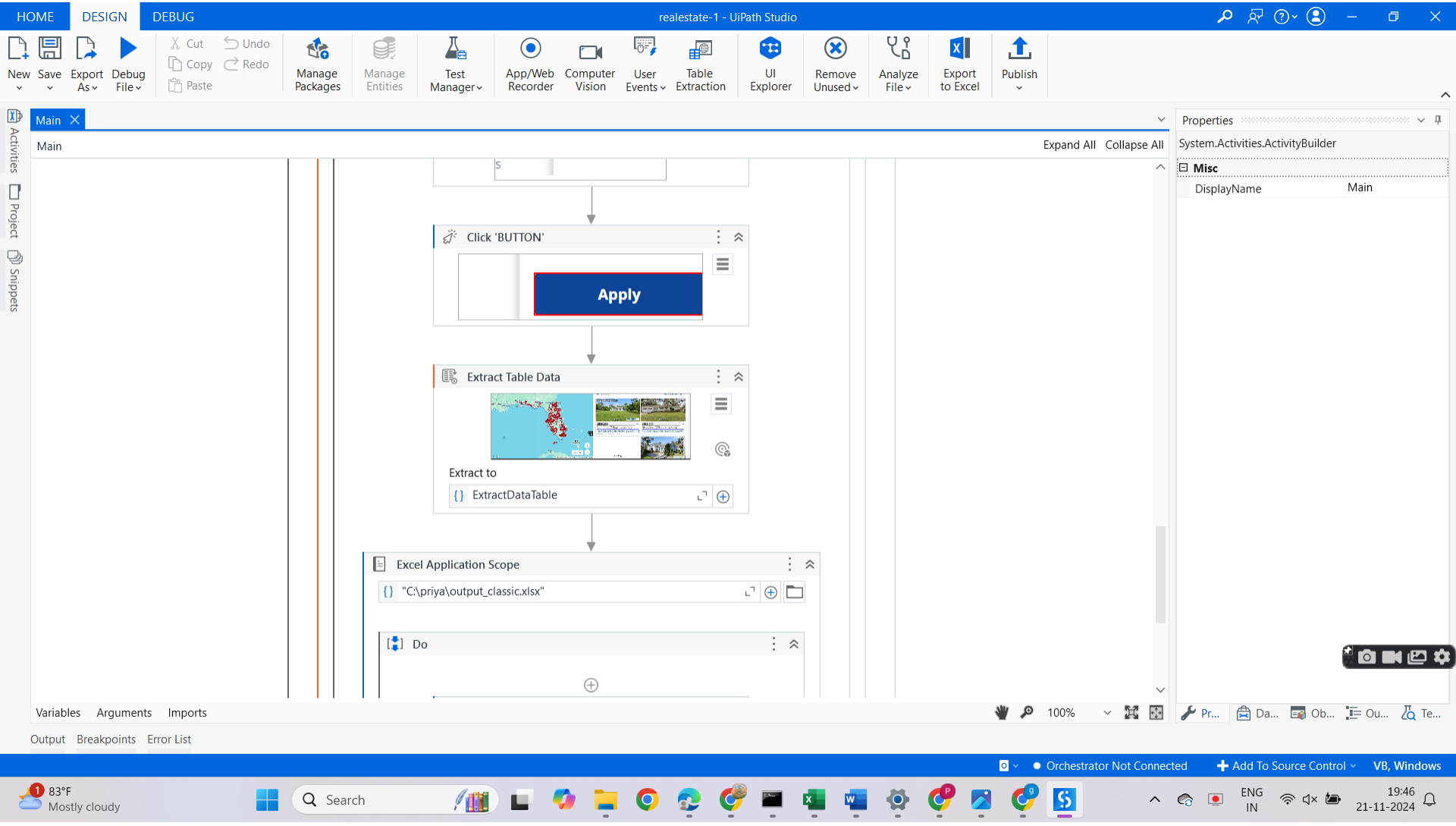
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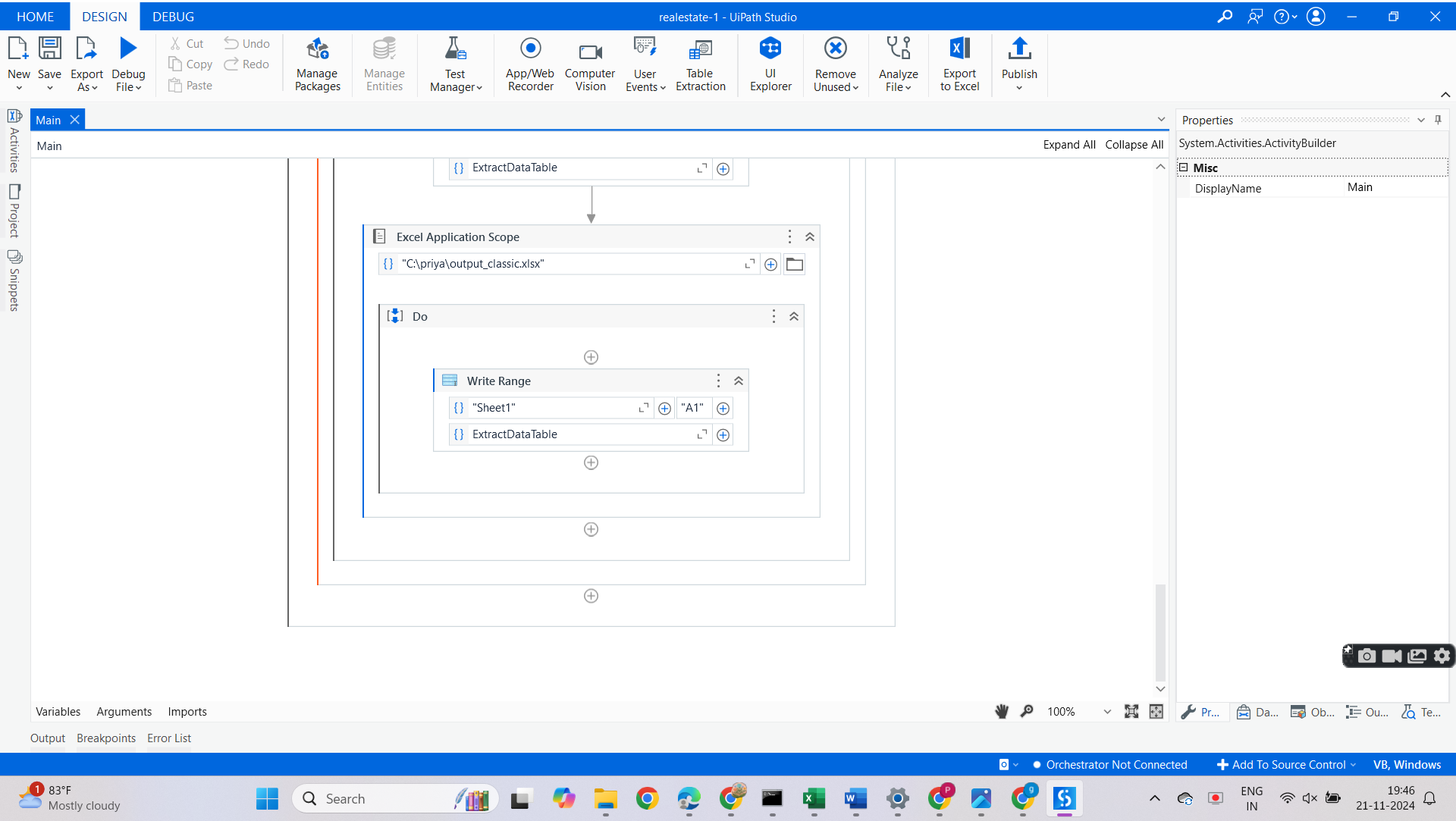
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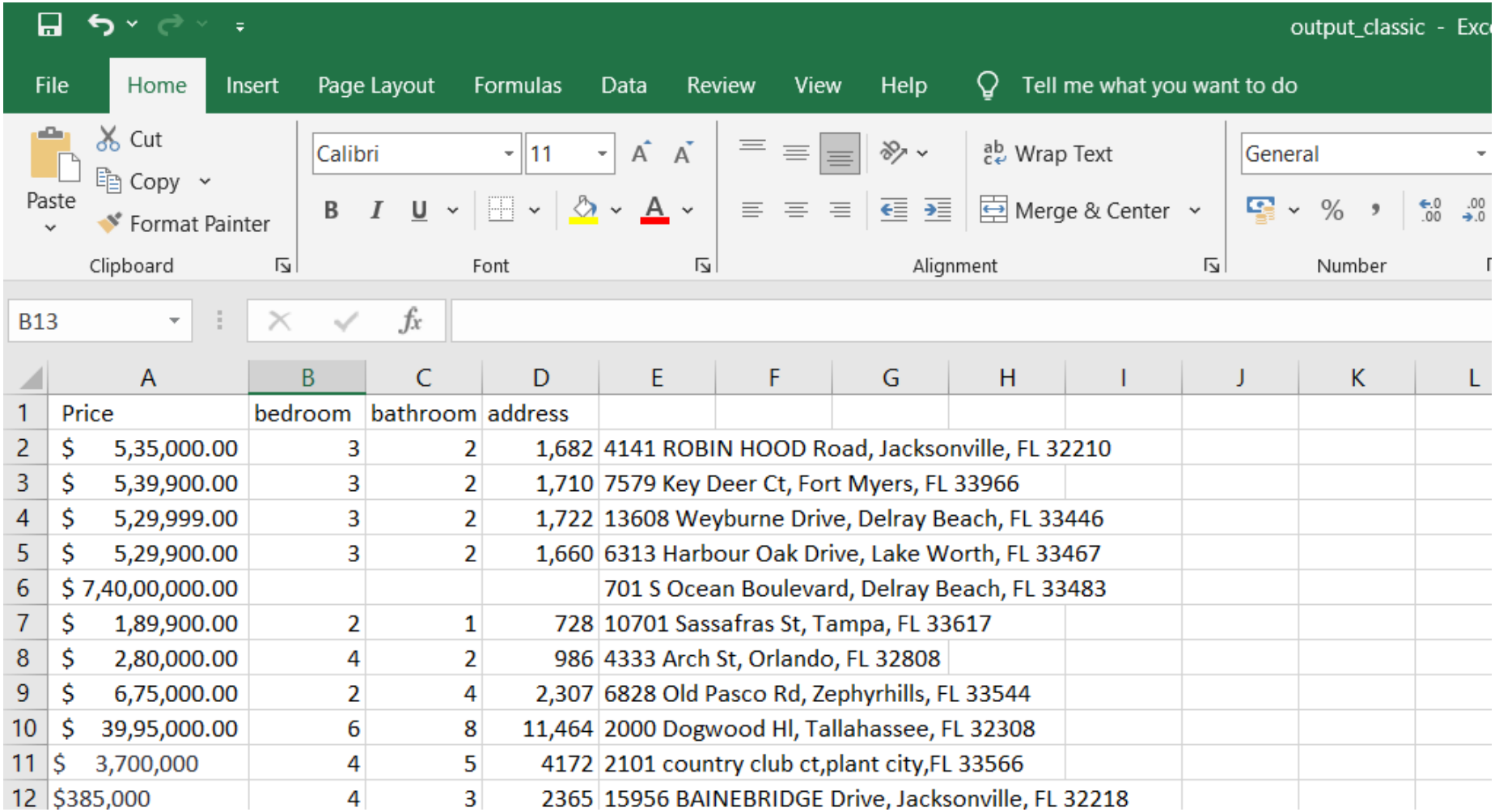

	A	B	C	D	E	F	G	H	I	J	K	L
1	Price	bedroom	bathroom	address								
2	$ 5,35,000.00	3	2	1,682	4141 ROBIN HOOD Road, Jacksonville, FL 32210							
3	$ 5,39,900.00	3	2	1,710	7579 Key Deer Ct, Fort Myers, FL 33966							
4	$ 5,29,999.00	3	2	1,722	13608 Weyburne Drive, Delray Beach, FL 33446							
5	$ 5,29,900.00	3	2	1,660	6313 Harbour Oak Drive, Lake Worth, FL 33467							
6	$ 7,40,00,000.00				701 S Ocean Boulevard, Delray Beach, FL 33483							
7	$ 1,89,900.00	2	1	728	10701 Sassafras St, Tampa, FL 33617							
8	$ 2,80,000.00	4	2	986	4333 Arch St, Orlando, FL 32808							
9	$ 6,75,000.00	2	4	2,307	6828 Old Pasco Rd, Zephyrhills, FL 33544							
10	$ 39,95,000.00	6	8	11,464	2000 Dogwood Hl, Tallahassee, FL 32308							
11	$ 3,700,000	4	5	4172	2101 country club ct,plant city,FL 33566							
12	$385,000	4	3	2365	15956 BAINEBRIDGE Drive, Jacksonville, FL 32218							

Thank You