CODECELL – CMPN, VESIT

SYRUS HACKATHON 2025

Category Code: C2
Problem Statement Title: AI powered real estate platforms
Team Name: Finnacle AI
Institute Name: Vivekanand Education Society's Institute of Technology

Idea / Approach details (& implemented features)

We aim to create an AI agent that searches real estate platforms like MagicBricks, 99Acres, and Housing.com to identify housing investment opportunities tailored to client needs. The AI will negotiate optimal market prices, draft legally viable agreements, and, if required, integrate with a loan verification system to assess eligibility and recommend the best interest rate options from credible banks.

Idea / Approach details (& implemented features)

Workflow:

1. Client inputs his requirements for the property such as property type, amenities,location, budget, etc.
2. The Property finding agent takes this input and searches properties based on the given requirements
3. It then shortlists the properties that best match the client's preferences
4. Upon receiving approval from the client, it starts negotiating on behalf of the client for obtaining the property at an optimal market price
5. After finalizing a price that satisfies both parties involved, It drafts a legally viable contract on terms that are agreed upon by both parties

Idea / Approach details (& implemented features)

6. If called upon, the integrated loan agent checks the eligibility of the client for a loan based on their score and fetches them the best interest rates from credible banks

Innovation (Showstopper)

- **Agentic AI that acts as a broker between buyers and sellers and negotiates for the proper market price that is satifactory for both parties**
- **Upon beginning of the negotiation process, AI will draft an agreement upon which both parties can agree. The agreement will follow all legal requirements and make the transaction easier for both parties.**
- **The Client will be offered to opt for a loan if required. Another integrated AI will check the client's eligibility and give the client personalized options for the best possible interst rates based on his score**
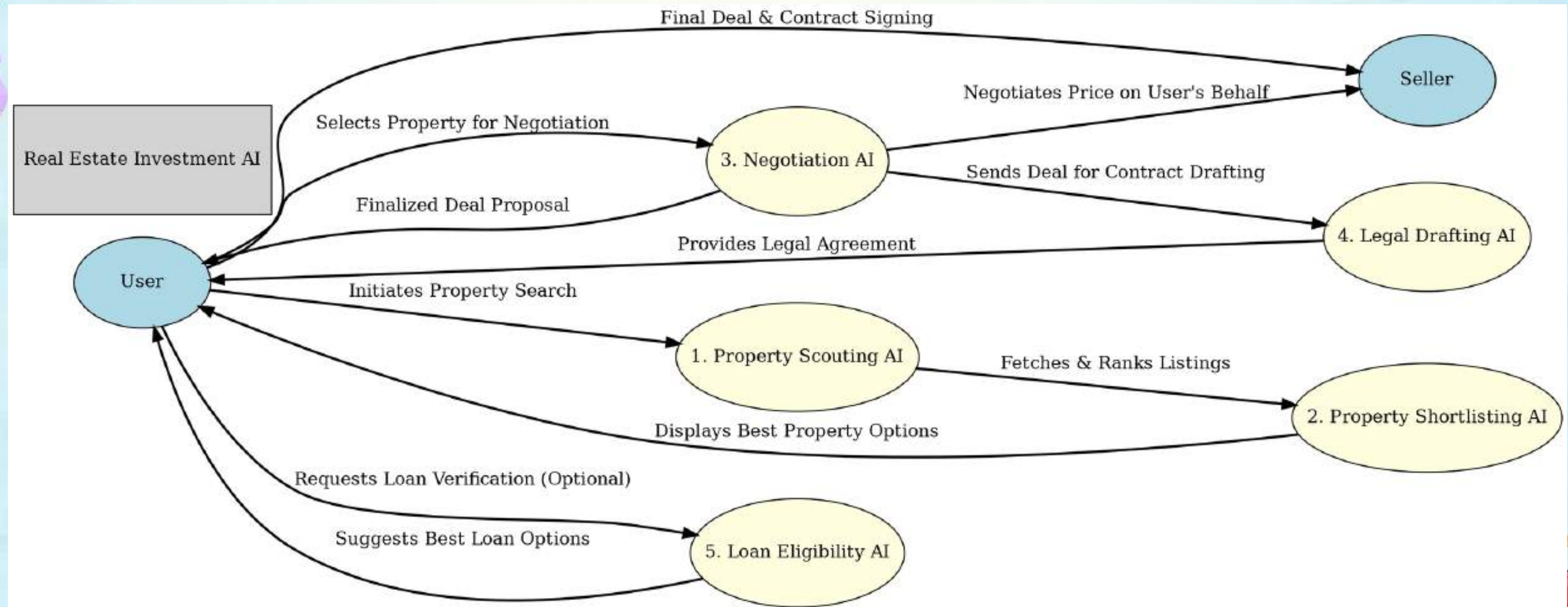
Tech Stack

- **Webcrawlers:** for searching properties that meet the client's reqirements
- **Webhooks:** To collect data from a specific site to match a consumers specific property needs.
- **API handlers:** To fetch API keys and integrate it with UPTIQ'S automation software.
- **HTML parsing libraries:** To convert the retrieve JSON file into a cleaner data for the program to read
- **UPTIQ automation tools:** Automation of the involved processes

Implementation/Prototype/Use Case Diagram

Implementation Of Sub-Agents

Property Finder Sub-Agent:
- Searches for properties based on user input (budget, location, type, amenities).
- Retrieves listings from multiple sources (real estate databases, APIs).
- Filters results to match user preferences.
- Sends the best-matching properties to the Property Shortlisting AI.

Loan Eligibility AI (Financial Check & Loan Options)
- Checks if the user qualifies for a home loan based on income, credit score, and debt history.
- Fetches real-time loan offers from banks and financial institutions.
- Helps compare interest rates & EMI options for the best deal.
- Assists in verifying documents required for loan approval.
- Ensures users select a legitimate bank or lender before proceeding.

Implementation Of Sub-Agents

Legal Drafting AI (Contract Generation & Legal Validation):
- Generates legally binding contracts based on the finalized deal.
- Ensures compliance with real estate laws and regulations.
- Allows modifications (adding special clauses, corrections).
- Validates agreements before signing (checks for errors, missing terms).
- Handles digital signatures and securely stores signed contracts.

Deal Approval AI (Client Confirmation & Finalization):
- Presents the final negotiated offer to the buyer.
- Allows the buyer to approve, reject, or request modifications.
- Ensures both buyer and seller are in agreement before legal drafting.
- Validates the final offer before proceeding to contract generation.
- Confirms the deal is locked before moving to the legal phase.

Implementation Of Sub-Agents

Negotiation AI (Market Price Optimization & Seller Engagement):

- Analyzes market trends to determine the best price for the property.
- Engages with sellers/agents to negotiate the best possible deal for the buyer.
- Places counter-offers based on buyer preferences and market insights.
- Evaluates seller responses and adjusts negotiation strategy accordingly.
- Finalizes the deal once both parties agree on a price.

Property Shortlisting AI (Ranking & Filtering):

- Filters and ranks properties based on user preferences (budget, location, amenities).
- Compares shortlisted properties to help buyers make informed decisions.
- Prioritizes key features like proximity to workplaces, schools, and transport.
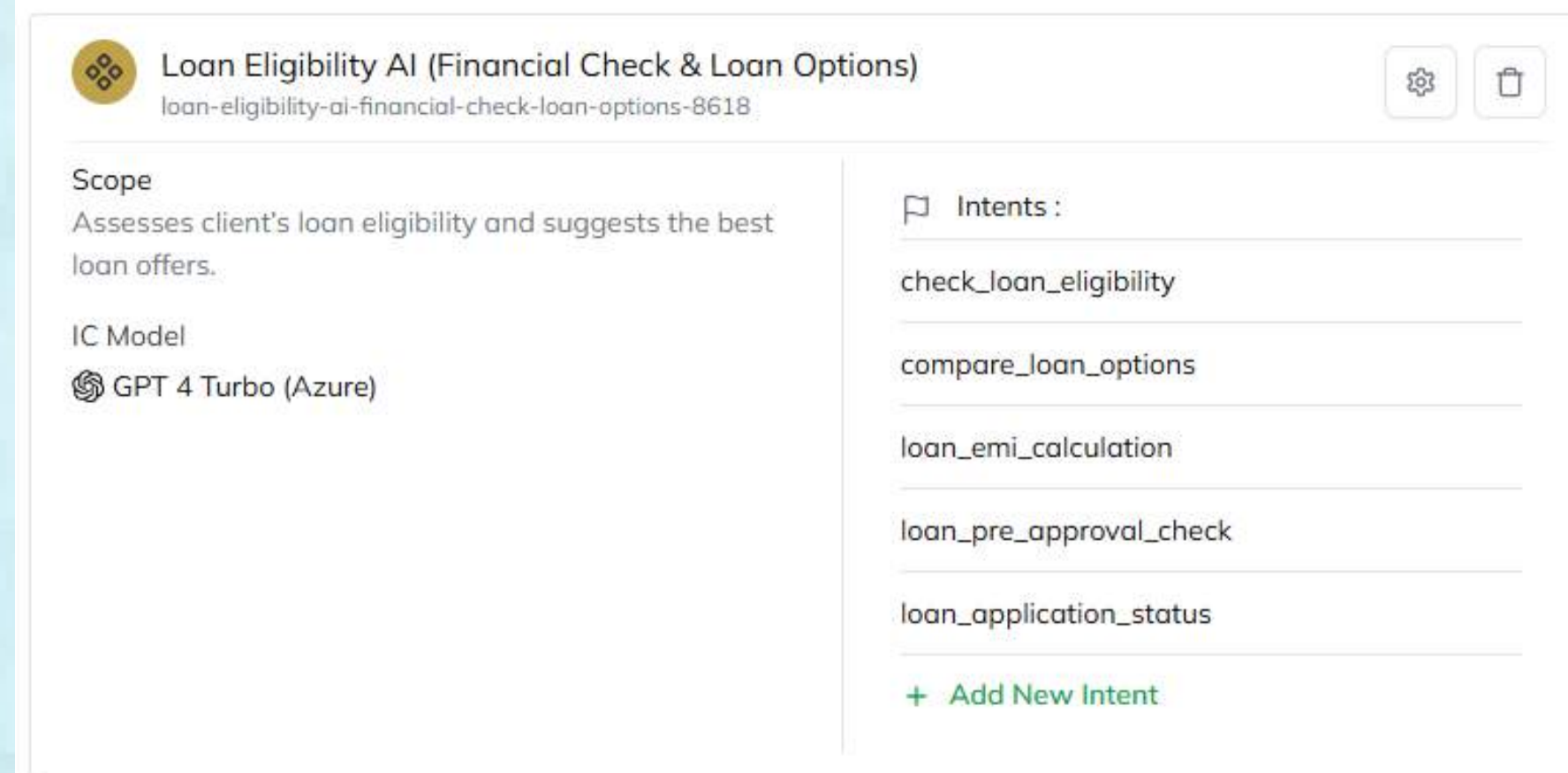- Sends the final shortlist to the Negotiation AI for price discussions.

Implementation Of Sub-Agents

Crawls real estate platforms to fetch and analyze property listings based on user preferences:

- Fetches property listings from real estate platforms (MagicBricks, 99Acres, NoBroker, etc.).
- Analyzes listings based on user preferences (budget, location, amenities).
- Extracts key property details (price, size, seller info, features).
- Filters out duplicate or outdated listings for accurate recommendations.
- Sends the best-matching properties to Property Scouting AI for further processing.

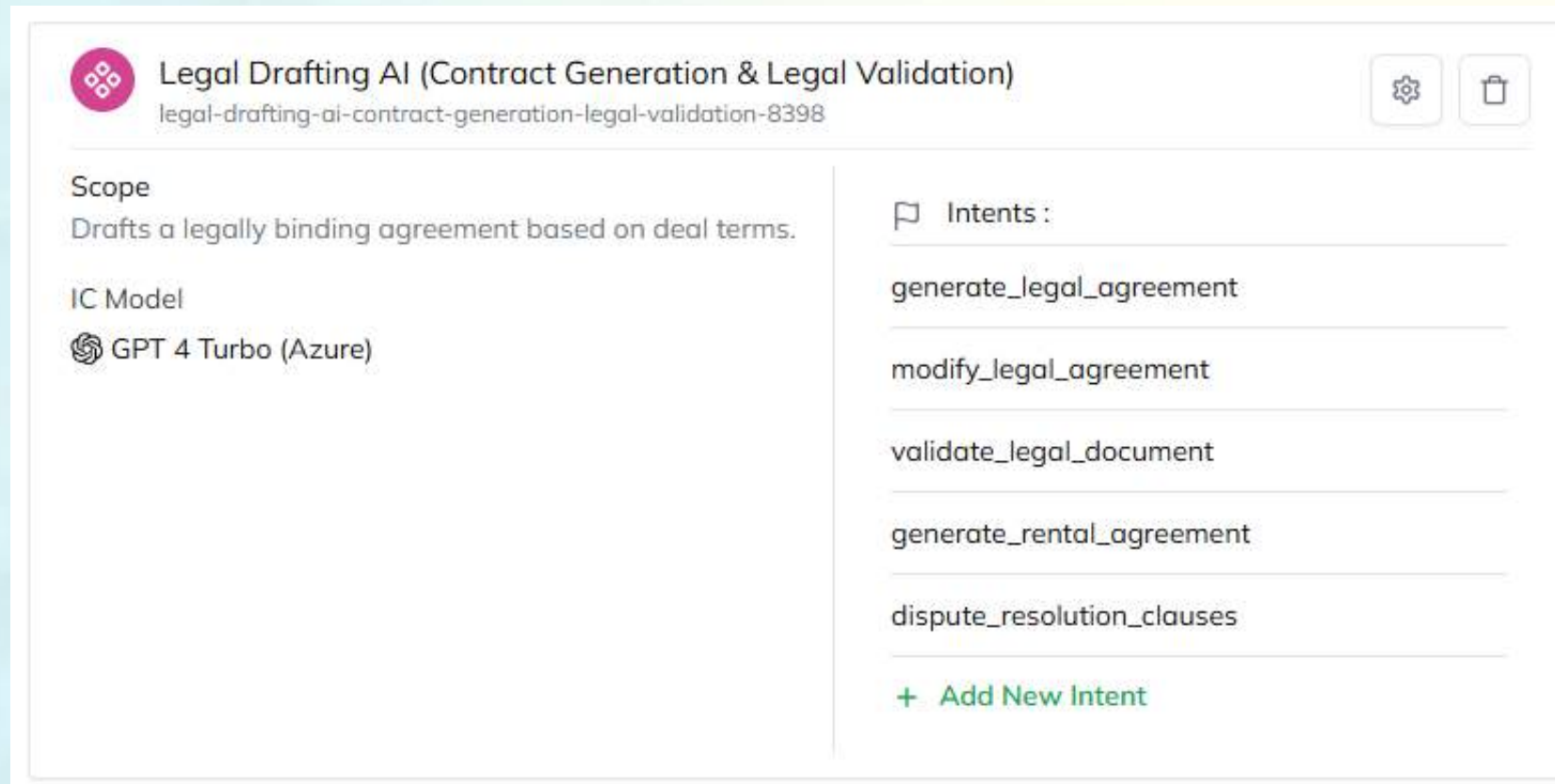# Implementation/Prototype/Use Case Diagram (screenshots)

Intent explanations:
- **check_loan_eligibility:** determines a client's eligibility for a loan on set parameters
- **Compare_loan_options:** Compares the available loan options to fetch the best ones for the client
- **loan_emi_calculation:** Calculates EMI for the given loan
- **loan_pre_approval_check:** checks if loan can be pre-approved
- **loan_application_status:** checks application status of the loan

Implementation/Prototype/Use Case Diagram (screenshots)

Legal Drafting AI (Contract Generation & Legal Validation)
legal-drafting-ai-contract-generation-legal-validation-8398

Scope
Drafts a legally binding agreement based on deal terms.

IC Model
GPT 4 Turbo (Azure)

Intents :
generate_legal_agreement
modify_legal_agreement
validate_legal_document
generate_rental_agreement
dispute_resolution_clauses
+ Add New Intent

Intent explanations:
- **generate_legal_agreement**: Generates a legal agreement
- **modify_legal_agreements**: modifies the legal documents for appropriate changes
- **validate_legal_document**: validates the legal document by approval of both parties
- **generate_rental_agreement**: generates fin
- **dispute_resolution_clauses**: dispute clauses that

Implementation/Prototype/Use Case Diagram (screenshots)

Negotiation AI (Market Price Optimization & Seller Engagement)
negotiation-ai-market-price-optimization-seller-engagement-8625

Scope
Interacts with sellers to negotiate the best market price for the buyer.

IC Model
GPT 4 Turbo (Azure)

Intents :

negotiate_property_price

check_market_prices

request_seller_incentives

counter_offer_suggestion

negotiate_rental_price

+ Add New Intent

Crawls real estate platforms to fetch and analyze property listings based on...
crawls-real-estate-platforms-to-fetch-and-analyze-property-listings-based-on-user-preferences-4146

Scope
Crawls real estate platforms to fetch and analyze property listings based on user preferences.

IC Model
GPT 4 Turbo (Azure)

Intents :

fetch_property_listings

fetch_new_listings

filter_fraudulent_listings

track_price_changes

+ Add New Intent

Activate Windows

In case of Uptiq category - Your Uptiq Agent (explain in detail)

Objective: Automating property investment through AI-driven scouting, shortlisting, negotiation, legal drafting, and loan verification.
Process:

- Scouting AI – Extracts listings from trusted platforms.
- Shortlisting AI – Filters and ranks properties.
- Negotiation AI – Secures the best price.
- Legal AI – Drafts contracts.
- Loan AI (Optional) – Finds financing options.

Impact: Saves time, secures the best deals, ensures legal compliance, and streamlines real estate investment.

Future Objectives

- Simplify buying and renting property by streamlining the entire process of finding,negotiating and funding the property
- Minimize the need for 3rd party interventions in the process of property transactions
- Work in collaboration with different banks for making the loan process more convenient and efficient
- Remove the requirement for brokerage fees and the chances of broker upcharging.
- Strengthen AI's capability to detect fake listings and fraudulent transactions.

Workflow Of Intents of Subagents: Property Search agent

Intent: Get User Preferences

Purpose:

- Collect user preferences such as location, budget, property type, and negotiability and store them as agent variables for later filtering.

Workflow in Uptiq Workflow Builder

1. **User Input Node (Get Data → Input → Collect User Response)**
   - Ask the following questions:
     - "Which city are you looking for a property in?"
       - Variable: input.user_location
     - "What is your budget range?"
       - Variables: input.user_budget_range.min, input.user_budget_range.max
     - "What type of property are you looking for?"
       - Variable: input.user_property_type
     - "Are you looking for only negotiable properties?"
       - Variable: input.user_is_negotiable (Boolean)
2. **Agent Variables Node (Data Processing → Variables → Store Agent Variables)**
   - Store the collected user input in the agent memory for use in filtering later.
3. Transition to "Shortlist Properties" Intent.

Workflow Of Intents of Subagents: Property Search agent

Purpose:
Filter properties from the database based on user preferences.
Workflow in Uptiq Workflow Builder

1. Table Read Node (📍 Data Processing → Read Table)
   - Read property data from the property database.
2. Filter Node (📍 Data Processing → Apply Filters)
   - Conditions:
   - TypePathOperatorValue
   - String
   - location
   - $like
   - input.user_location
   - Number
   - price
   - $between
   - [input.user_budget_range.min, input.user_budget_range.max]
   - String
   - type
   - $equals
   - input.user_property_type
   - Boolean
   - negotiable
   - $equals
   - input.user_is_negotiable
3. Projection Node (📍 Data Processing → Select Data Fields)
   - Select only relevant fields:
     - name, location, price, type, seller_info.contact
4. Display Node (📍 Interaction → Display Response)
   - Show shortlisted properties in a structured format.
5. User can:
   - View More Details
   - Select a Property
   - Go Back to Menu

Workflow Of Intents of Subagents: Property Search agent

Purpose:

Show the filtered list of properties in a user-friendly way.
Workflow in Uptiq Workflow Builder
Retrieve the shortlist from the previous step.
Display Node (📍 Interaction → Display Response)
Show:
Name
Location
Price
Property Type
Contact Info
User chooses a property for more details.

Workflow Of Intents of Subagents: Property Search agent

Purpose:

Show detailed information about a selected property.

Workflow in Uptiq Workflow Builder

User selects a property from the shortlist.

Table Read Node fetches full details from the database.

Display Node shows:

Area

Amenities

Seller Info (Name, Contact, Negotiability)

Options:

Go Back

Connect with Seller

Workflow Of Intents of Subagents: Property Search agent

Purpose:

Allow the user to contact the seller of a selected property.

Workflow in Uptiq Workflow Builder

User selects "Connect with Seller".

Retrieve seller info from the database.

Display seller contact details (Phone number, negotiability status).

Provide options to call/message the seller.

Workflow Of Intents of Subagents: Property Investment Advisor

Purpose:

Gather investment-related preferences (budget, ROI expectation, location).
Workflow in Uptiq Workflow Builder
User Input Node (📍 Get Data → Input → Collect User Response)
Ask:
"Which city are you looking to invest in?" → input.investor_location
"What is your investment budget?" → input.investor_budget.min, input.investor_budget.max
"What is your expected ROI?" → input.investor_roi_expectation
Store variables in the Agent Variables Node.

Workflow Of Intents of Subagents: Property Investment Advisor

Purpose:

Filter investment properties based on user expectations.

Workflow in Uptiq Workflow Builder
Table Read Node: Fetch investment property data.

Filter Node:

Type Path Operator Value
String location $like input.investor_location
Number price $between [input.investor_budget.min, input.investor_budget.max]
Number roi $gte input.investor_roi_expectation
Display shortlisted investment properties.

Workflow Of Intents of Subagents: Rental Property Agent

This sub-agent helps users find rental properties.
1️⃣ Intent: Get Rental Preferences
Workflow:
User Input Node → Get location, budget, property type.
Store variables for filtering.
2️⃣ Intent: Shortlist Rental Properties
Workflow:
Filter rental properties using the stored preferences.
Display the results.

Workflow Of Intents of Subagents: Property Selling Agent

This sub-agent helps users list their properties for sale.

1️⃣ Intent: Get Seller Information

Workflow:

User Input Node → Get property details from seller.

Store in Agent Variables.

2️⃣ Intent: List Property for Sale

Workflow:

Table Write Node → Store property details in the database.

Confirmation Message → "Your property has been listed successfully!"

Workflow Of Intents of Subagents: Property Market Insights

Provides users with property market trends and insights.
1️⃣ **Intent: Provide Market Insights**
Workflow:
Fetch market data from the database.
Filter data based on location.
Display market insights to the user.

Workflow Of Intents of Subagents: ROI Calculator

1️⃣ **Intent: Calculate ROI**
Workflow:
User enters property details (purchase price, expected rent, annual expenses).
ROI calculation formula applied.
Display estimated ROI.

Workflow Of Intents of Subagents: Overview Diagram

Sub Agents

Loan Eligibility AI (Financial Check & Loan Options)

Intents

- check_loan_eligibility
- compare_loan_options
- loan_emi_calculation
- loan_pre_approval_check
- loan_application_status

Workflows

- Workflow for check_loan_eligibility
- Workflow for compare_loan_options
- Workflow for loan_emi_calculation
- Workflow for loan_pre_approval_check
- Workflow for loan_application_status

Workflow Of Intents of Subagents: Overview Diagram

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Workflow Of Intents of Subagents: Overview Diagram
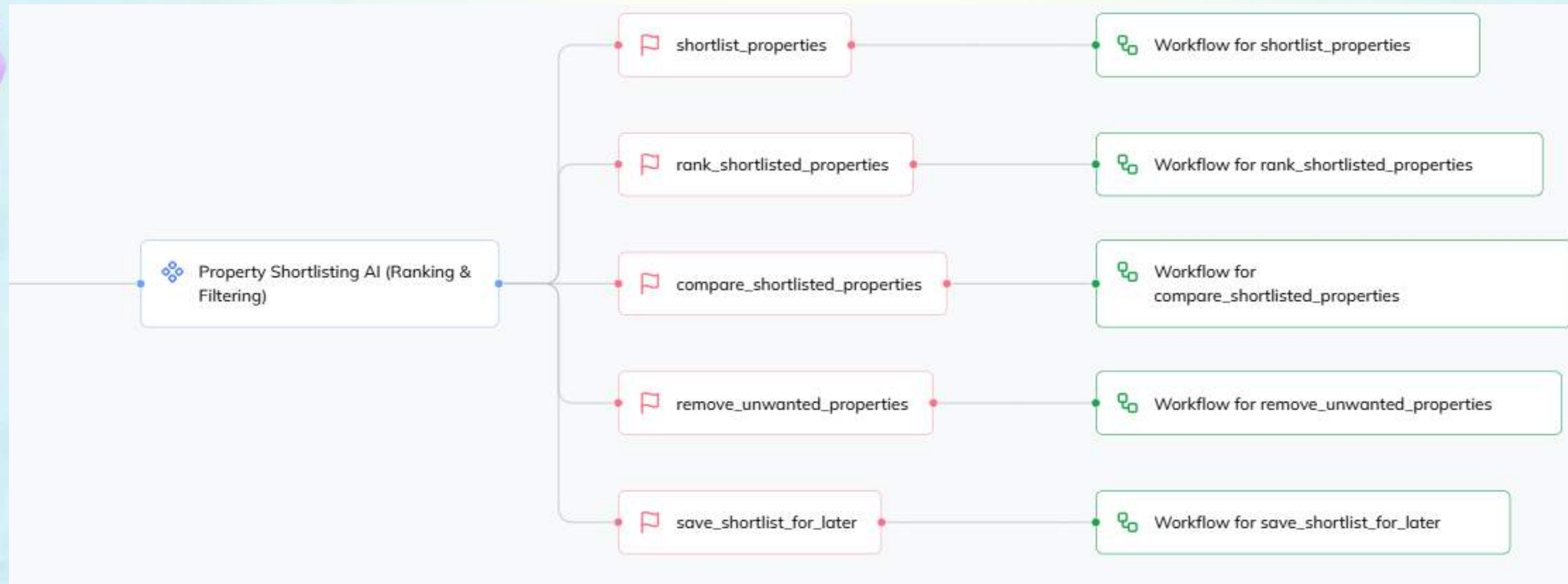
Workflow Of Intents of Subagents: Overview Diagram

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Workflow Of Intents of Subagents: Overview Diagram

Variables

Variables declared within an agent are accessible across its sub-agents, enabling dynamic value storage and modification during execution.

Agent Variables ⓘ

user_location	budget_range	roi_threshold	property_type	filtered_results
agent.user_location	agent.budget_range.min	agent.budget_range.max		
agent.property_type	$agent.is_negotiable	user_budget_range.min		
user_budget_range.max	user_location	user_property_type	user_is_negotiable	

+1 More

+ Add Agent Variables

Context Variables ⓘ

+ Add Context Variables

Secrets

It allows agents to have distinct configurations per deployment. Use the $secrets prefix to reference them.

+ Add Secret

No secrets configured on this agent. Get started by adding a secrets above.

Workflow Of Intents of Subagents: Overview Diagram

buyer_id	name	age	location_p	budget	property_	loan_requ	credit_sco	preferred_	preferred_	preferred_amenities/2
B001	Amit Verm	35	Mumbai, I	12000000	Apartmen	TRUE	780	Gym	Swimming	Parking
B002	Priya Men	42	Bangalore	15000000	Villa	FALSE	820	Garden	Private Po	Modular Kitchen
B003	Rahul Sing	29	Delhi, Indi	10000000	Penthouse	TRUE	750	Terrace Ga	Jacuzzi	Smart Home Features
B004	Neha Kapo	50	Pune, Indi	9000000	Apartmen	FALSE	800	Clubhouse	Children's	CCTV Security
B005	Suresh Ba	39	Hyderaba	20000000	Villa	TRUE	770	Golf Cours	Private Gy	Home Automation
B006	Ananya Da	31	Kolkata, In	8000000	Apartmen	TRUE	730	High-Spee	Solar Pane	Rooftop Cafe
B007	Vikram Sir	47	Jaipur, Ind	25000000	Farmhous	FALSE	840	Organic Ga	Horse Stal	Pond
B008	Meera Pat	28	Ahmedaba	11000000	Duplex	TRUE	760	Gated Con	Smart Ligh	EV Charging Station
B009	Daniel Roc	45	Goa, India	30000000	Beach Hou	FALSE	850	Private Be	Infinity Po	Bar Lounge
B010	Arun Shar	33	Chennai, I	9500000	Apartmen	TRUE	740	Security	Gym	Children's Play Area

Workflow Of Intents of Subagents: Overview Diagram

loan_id	bank_nam	loan_amo	interest_r	tenure_ye	monthly_e	total_inte	total_payment
L001	HDFC Ban	2500000	7.5	20	20189	2345360	4845360
L002	ICICI Bank	5000000	7.2	25	36391	5923300	10923300
L003	SBI Bank	7500000	6.9	15	66817	4534560	12034560
L004	Axis Bank	10000000	7.8	30	71677	15783720	25783720
L005	Kotak Mah	3000000	7.1	10	34857	1172840	4172840
L006	Punjab Na	2000000	6.8	20	16151	1872320	3872320
L007	HDFC Ban	12000000	7.4	25	87238	10442380	22442380
L008	ICICI Bank	9000000	7	30	64327	12365490	21365490
L009	SBI Bank	6000000	6.7	15	52643	3892750	9892750
L010	Axis Bank	8000000	7.6	20	63324	7235340	15235340

Workflow Of Intents of Subagents: Overview Diagram

template_id	document_type	clauses/0	clauses/1	clauses/2	clauses/3	clauses/4	signature_required
LT001	Purchase Agreement	The Seller agrees to transfe	The Buyer shall pay a deposit of :	The remaining balance sl	The property is sold in	Any disputes shall I	TRUE
LT002	Lease Agreement	The Tenant agrees to lease	The Tenant shall pay a security d	The Landlord is responsi	The Tenant shall not su	Failure to pay rent	TRUE
LT003	Loan Agreement	The Borrower agrees to re	The interest rate applicable on th	Failure to pay EMI for th	The Lender retains the	The Borrower has t	TRUE
LT004	Power of Attorney	The Principal authorizes th	This Power of Attorney remains i	The Agent shall not make	The Agent must act in	The Power of Attor	TRUE
LT005	Title Transfer Agreement	The current Owner agrees	The Buyer shall pay the agreed-u	The Seller shall provide a	This agreement shall b	Any breach of agre	TRUE
LT006	Escrow Agreement	An independent third-part	The Buyer must deposit the full p	Funds shall only be relea	In case of dispute, the	Both parties agree	TRUE
LT007	Property Inheritance Agre	The Beneficiary shall inheri	Legal heirs must provide valid do	Any disputes regarding in	The transfer of owners	Inheritance tax, if a	TRUE
LT008	Mortgage Agreement	The Borrower agrees to us	The Lender retains the right to fo	Monthly payments shall	Any prepayment shall	The mortgage must	TRUE

Workflow Of Intents of Subagents: Overview Diagram

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	bank_id	bank_nam	interest_r	loan_type	min_loan	max_loan	tenure_op	tenure_op	tenure_op	tenure_op	tenure_op	processing	eligibility_	eligibility_	eligibility_	eligibility_	prepayme	special_of	special_of	tenure_options/5				
2	B001	HDFC Ban	7.5	Home Loa	500000	50000000	5	10	15	20	25	0.5	750	30000	Salaried	Self-Emplo		2	Zero Proce	Lower Interest for Women Applicants				
3	B002	ICICI Bank	7.2	Home Loa	700000	60000000	5	10	15	20	25	0.75	720	35000	Salaried	Self-Emplo		1.8	Instant Ap	Flexible EI	30			
4	B003	SBI Bank	6.9	Home Loa	1000000	70000000	10	15	20	25	30	0.25	700	25000	Salaried	Self-Emplo		1.5	Lowest Int	Discounts for Government Employees				
5	B004	Axis Bank	7.8	Home Loa	800000	45000000	5	10	15	20	25	1	730	40000	Salaried	Self-Emplo		2.2	5% Cashba	Customized Interest Rates Based on Credit Profile				
6	B005	Kotak Mal	7.1	Home Loa	600000	55000000	5	10	15	20	25	0.6	740	32000	Salaried	Self-Emplo		1.7	No Prepay	Lower Interest Rates for Salaried Applicants				
7	B006	Punjab Na	6.8	Home Loa	900000	60000000	10	15	20	25	30	0.3	710	28000	Salaried	Self-Emplo		1.3	Zero Proce	Special Discounts for Senior Citizens				

Workflow Of Intents of Subagents: Overview Diagram

location	avg_price	demand_i	top_prope	top_prope	top_properties/2
Mumbai, I	12000000	89	Skyline Ap	Elite Resid	Sea Breeze Towers
Bangalore	9500000	82	Green Vall	Tech Hub	Silicon Residency
Chennai, I	8700000	78	Ocean Bre	Marina Ba	Sunrise Apartments
Pune, Indi	8000000	74	Sunset Bo	Hinjewadi	Balewadi Greens
Delhi, Indi	11000000	85	Elite Resid	Lutyens Bu	Capital View Apartments
Hyderaba	10200000	80	Palm Mea	Cyber City	HiTech Residency
Jaipur, Ind	7500000	70	Royal Gree	Pink City A	Heritage Haveli
Kolkata, In	7200000	68	Cityscape	Howrah R	Ganges View Apartments
Ahmedab:	7800000	72	Silver Oak	Sabarmati	Riverfront Towers
Goa, India	15500000	90	The Zen R	Beachfron	Ocean Pearl Residence

Workflow Of Intents of Subagents: Overview Diagram

seller_id	name	age	location	property_	property_	listed_pro	listed_pro	negotiable	preferred_	documentation_ready
S001	Rajesh Ma	55	Mumbai, I	Apartmen	12500000	Skyline Ap	Elite Resid	TRUE	Bank Tran	TRUE
S002	Sneha Iyer	43	Bangalore	Villa	18000000	Green Vall	Silicon Res	FALSE	Cheque	FALSE
S003	Anil Kapoc	60	Delhi, Indi	Penthouse	22000000	Capital Vie	Lutyens Bu	TRUE	Online Pay	TRUE
S004	Megha Sha	38	Pune, Indi	Apartmen	9500000	Balewadi (	Sunset Bo	FALSE	Cash	TRUE
S005	Vikrant Jos	48	Hyderabac	Villa	20000000	Palm Mea	HiTech Res	TRUE	Loan Clear	FALSE
S006	Arpita Cha	36	Kolkata, In	Apartmen	8500000	Cityscape	Howrah Ro	FALSE	Bank Tran	TRUE
S007	Raghav Sir	50	Jaipur, Ind	Farmhous	28000000	Royal Gree	Heritage H	TRUE	Gold Excha	FALSE
S008	Pooja Pate	42	Ahmedaba	Duplex	11000000	Silver Oak	Sabarmati	FALSE	Online Pay	TRUE
S009	David Ferr	58	Goa, India	Beach Hou	32000000	The Zen Re	Beachfron	TRUE	Foreign Ex	FALSE
S010	Anand Kris	45	Chennai, I	Apartmen	9700000	Marina Ba	Sunrise Ap	FALSE	Bank Loan	TRUE

Workflow Of Intents of Subagents: Overview Diagram

Agent Variables

$agent.user_location	input.user_location
$agent.budget_range.min	input.user_budget_range.mi
$agent.budget_range.max	input.user_budget_range.mc
$agent.property_type	input.user_property_type
$agent.is_negotiable	input.user_is_negotiable

Workflow Of Intents of Subagents: Overview Diagram

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