

AI AGENT-POWERED AUTOMATION FOR PELOTON FITNESS ECOSYSTEM:
REQUIREMENTS ANALYSIS PHASE

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Requirements analysis overview

The goal of the Peloton project is to design and implement a suite of multimodal AI agents that provide automation in a few key areas of the Peloton ecosystem (Order/Shipping, Product Management, Marketing, Membership & Fraud Detection and Data Science.) These agents must leverage *Large Language Models (LLMs)* and other AI modalities (image/document processing, querying structured data, etc) to handle tasks such as order tracking, product cataloging, marketing campaign performance analysis, fraud detection, user/customer segmentation, and predictive analytics. The aim is to create an intelligent, AI-driven tool that improves operational efficiency, customer engagement, decision-making and scalability for Peloton.

The ChatGPT (chatgpt.com) conversational client was used to analyze the project requirements (see figure 1). Its responses have been evaluated along side my own and combined to make a clear picture of how the Peloton project should be approached and how to support decision making in regards to implementation.

Requirement 1: Feasibility of a multimodal LLM-based agent

There are many opportunities for automation using LLM based AI agents in the Peloton project requirements. When requirement #1 was analyzed by ChatGPT (figure 2) the chat bot pointed out some important caveats to this. However, on the whole, it will be possible to meet the project requirements using multimodal AI agents. By divvying up process and workflows into different ‘nodes’ and ‘edges’ on an AI agent graph we can have each agent node focus on a specific portion of the desired capabilities. The complete Peloton project will be the sum of each agent working in concert.

The ChatGPT response did mention that full automation will require ‘deterministic’ components. I think this is a great point but does not prevent us from achieving automation. For example, it is true that an LLM is not appropriate for processing secure payments. We can address this by providing the respective agent responsible for membership support the payment portal as an external tool. If the agent determines the user is trying to make a payment they can be forwarded to the payment portal where our conventional server-side application can be used to complete the transaction. This could look like what we did in virtual lab #2, providing our own functions as external actions to the agent. In this example, the member support agent would utilize a `forward_to_payment_portal` action once it determined that was what the user required.

Requirement 2: Considering user stories

Developing user-stories is a common project management exercise that helps keep the end goal of the project in the forefront of design. User-stories should be specific, realistic and implementable. If we create stories that span all project requirements and our final product can perform in each of these scenarios we know the desired capabilities have been delivered. ChatGPT was prompted for three user-stories for each of the five key business areas (that correspond to the five main agents in the envisioned architecture.) Figure 3 shows the exchange with ChatGPT and its output.

These 15 user-stories make a great starting point for target capabilities. During development these will be used like a checklist, making sure the tool can accomplish these tasks and handle related prompts properly. This list also gives us cues about the types of external tools that we will need to make available for the agents. For example, there is a user-story involving the marketing agent providing recent social media trends. In order to accommodate this story the agent will need access to a general web search to get the latest trends. In virtual lab #3 we made Tavily available to the agent for getting current weather reports. We can use this same technique to make recent trends available to the agent in support of this user-story (and others!)

Requirement 3: Design with user stories in mind

When requirement #3 was provided to ChatGPT (see figure 4) the output was a series of well formatted Markdown tables that provided a summary of the design and implementation approach for each of the 15 user-stories. These summaries are reproduced in table 1 for easier viewing.

By examining the implementation notes in detail we have more insight into the techniques required to deliver the required capability. Consider the user stories for the product recommendations agent. Each of these stories involve access to structured data, namely sales and user activity records. In virtual lab #4 we loaded a variety of documents (including some with structured data) into the prompt context using *Retrieval Augmented Generation (RAG)* techniques. This involved creating embeddings of open text fields, placing them in a vector store and creating retrieval tools for the agent to utilize as needed. This design approach can be used in support of these user-stories that benefit from access to enterprise data such as sales records.

Requirement 4: Training & test data

The development of these five AI agents (and the agent that will direct user queries to the appropriate agent) will require populated tables of structured data (sales records, product descriptions, user accounts, etc) and example user queries with their expected outputs. Figure 5 shows the initial exchange with ChatGPT after seeing requirement #4. The response lays out the sort of training data that would be needed to test each of the agents.

This was followed up with specific requests for example data sets that related to each of the five areas. The responses consisted of Markdown tables whose rows correlated to records pertaining to that given business area. For example, ChatGPT generated faux order data that have been reformatted and displayed in table 2. Similar data sets were obtained for product data, marketing campaign metrics, user/membership access records and user/customer performance metrics as shown in figures 6 through 9 respectively. The generated data sets will be a surrogate for the external data sources that a production enterprise system would have. The Peloton AI agents will need access to tables like these and the records produced by ChatGPT are a starting point that will enable development to begin. Upon request, ChatGPT made all of these records available for download in a single JSON file. This file will be chunked up and loaded into the various RAG tools we develop as part of the project.

In addition to having records that simulate populated enterprise systems it would be useful to have a list of hypothetical user prompts that represent each of the user-stories. In figure 10 you can see a series of user queries and their expected outputs. These span the five domains governed by each of the AI agents and will provide a great benchmark for measuring progress while developing the project.

Appendix

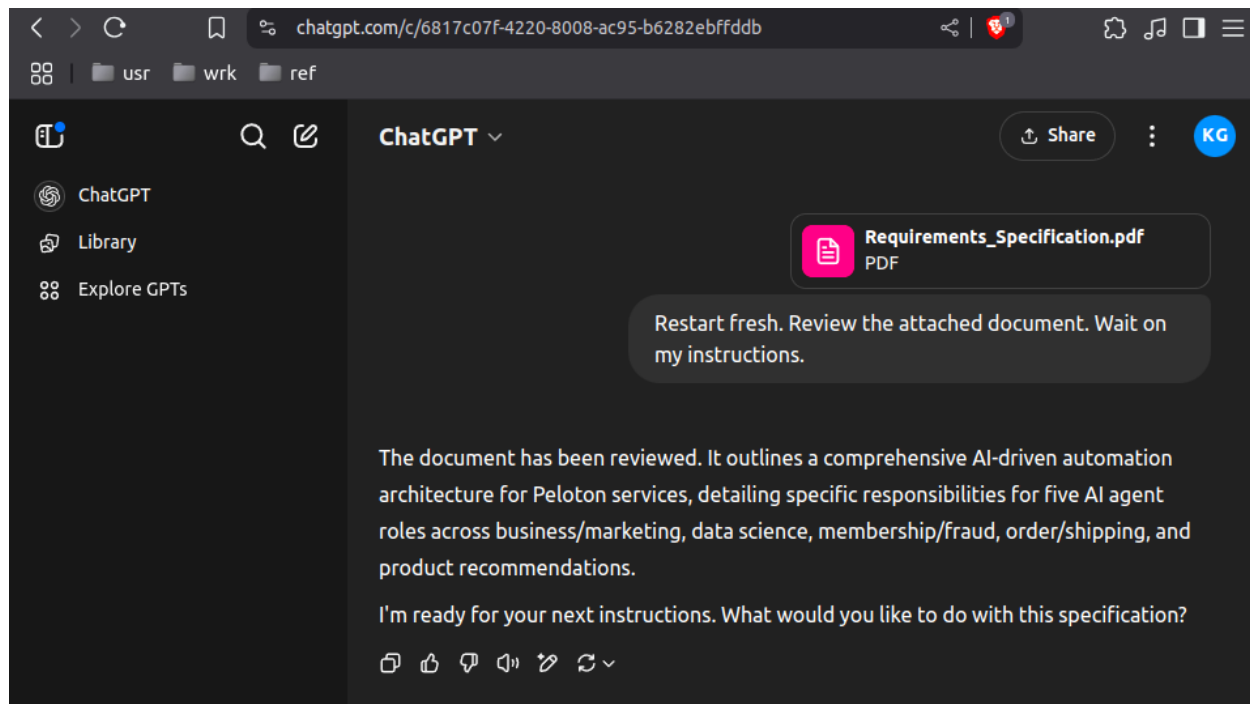


Figure 1: Loading project requirements on chatgpt.com

In less than 200 words provide your answer for this requirement: After you review the requirements specification document, comment on whether all of the listed responsibilities, process workflows, features and functionalities can be fully automated by building multimodal LLM based AI agents.

While many of the listed responsibilities in the specification can be addressed using multimodal LLM-based AI agents, full automation is not entirely feasible for all areas. Tasks like personalized recommendations, data-driven insights, customer support, and marketing analytics can be effectively handled with LLMs, especially when integrated with structured backend data and user inputs. However, complex workflows—such as fraud detection, secure payment handling, and nuanced customer disputes—require deterministic systems, external integrations, and possibly human oversight for reliability and compliance. Moreover, multimodal inputs (e.g., voice, image, text) add usability but also introduce challenges in accuracy, context interpretation, and system robustness. In short, LLMs can significantly augment and partially automate many features, but a hybrid approach combining AI agents with rule-based logic and human intervention is necessary for critical or high-risk functions.

Figure 2: ChatGPT analyzed requirement #1 and notes automation opportunities.

In less than 200 words provide your answer for this requirement: Use ChatGPT to generate a list of 3 user-stories (use-cases) for every AI Agent; the user-story should be implementable, specific and in line with at least one responsibility of an AI Agent.

Here are 3 specific and implementable user stories for each AI Agent, aligned with their responsibilities:

- 1. Business/Marketing AI Agent**
 - As a marketing manager, I want the AI agent to generate a weekly report on campaign engagement metrics, so I can assess ROI and adjust strategies.
 - As a sales associate, I want the AI agent to identify top-performing customer segments based on past purchases, so I can tailor promotions.
 - As a content strategist, I want the AI agent to suggest social media topics based on recent customer feedback and trends, so I can improve audience engagement.
- 2. Data Science AI Agent**
 - As a product manager, I want the AI agent to summarize trends in workout completion rates across age groups, so I can prioritize features.
 - As a fitness coach, I want the AI agent to explain member performance statistics in simple terms, so I can personalize training.
 - As an analyst, I want the AI agent to recommend clustering algorithms for segmenting user fitness behavior, so I can uncover hidden patterns.
- 3. Membership/Fraud Detection AI Agent**
 - As a member, I want the AI agent to notify me of login attempts from new devices, so I can secure my account.
 - As a support agent, I want the AI to help users reset passwords after identity verification, so I can reduce response time.
 - As a finance officer, I want the AI agent to flag accounts with abnormal usage patterns, so I can investigate possible fraud.
- 4. Order/Shipping AI Agent**
 - As a customer, I want the AI agent to provide real-time tracking updates for my shipped bike, so I know when to expect delivery.
 - As a warehouse employee, I want the AI to suggest restocking actions based on current inventory and return trends, so we avoid shortages.
 - As a support rep, I want the AI agent to automatically resolve simple shipping issues like delayed packages, so I can focus on complex cases.
- 5. Product Recommendation AI Agent**
 - As a member, I want the AI to recommend workout accessories based on my recent training history, so I can improve my setup.
 - As a sales manager, I want the AI agent to identify best-selling product bundles, so I can promote them effectively.
 - As a customer, I want the AI to compare different treadmills based on specs and user reviews, so I can make an informed purchase.

Figure 3: ChatGPT wrote user-stories for each key area in requirement #2.

In less than 200 words provide your answer for this requirement: Create a Table for every AI Agent and every user-story (use-case) you answered in the requirement above and document (complete code/implementation is not required) how it will be designed and implemented.

Below is a table for each AI Agent and its 3 user stories, describing the design and implementation approach (summarized for brevity):

1. Business/Marketing AI Agent	
User Story	Design & Implementation
Weekly campaign report	Integrate LangChain with CRM data; use GPT to summarize metrics; auto-schedule via workflow orchestrator.
Segment identification	Query customer data via vector DB; use GPT with retrieval to analyze and return top segments.
Social media topics	Ingest feedback data; use GPT to classify themes; recommend topics based on frequency and engagement data.
2. Data Science AI Agent	
User Story	Design & Implementation
Workout trends by age	Use Python pipeline to analyze time-series data; GPT summarizes insights for product team.
Explain performance stats	Combine user metrics with GPT prompt templates for simplified explanations.
Recommend clustering algorithms	GPT suggests methods based on dataset characteristics and task goals using RAG pipeline.
3. Membership/Fraud Detection AI Agent	
User Story	Design & Implementation
Login alert	Use backend event triggers; GPT sends natural language alerts via email/SMS.
Password reset	Secure workflow with GPT-guided steps post-identity check; calls backend APIs.
Fraud flagging	Anomaly detection model flags accounts; GPT explains findings to support agents.
4. Order/Shipping AI Agent	
User Story	Design & Implementation
Real-time tracking	API integration with shipping partners; GPT summarizes tracking updates.
Restock suggestions	Inventory analysis + GPT recommendations using sales velocity and return rates.
Simple issue resolution	Intent detection + response templates using GPT; escalate complex cases.
5. Product Recommendation AI Agent	
User Story	Design & Implementation
Recommend accessories	Preference and activity data fed to GPT; outputs tailored suggestions.
Best-selling bundles	Sales DB query + GPT summarization; ranks bundles by popularity.
Treadmill comparison	Structured product data used in GPT prompt; outputs comparison table.
Each implementation combines retrieval-augmented generation (RAG), backend APIs, and LangChain orchestration for scalable AI workflows.	

Figure 4: ChatGPT broke down each user-story for requirement #3.

User Story	Design & Implementation
<hr/> 1. Business/Marketing AI Agent <hr/>	
Weekly campaign report	Integrate LangChain with CRM data; use GPT to summarize metrics; auto-schedule via workflow orchestrator.
Segment identification	Query customer data via vector DB; use GPT with retrieval to analyze and return top segments.
Social media topics	Ingest feedback data; use GPT to classify themes; recommend topics based on frequency and engagement data.
<hr/> 2. Data Science AI Agent <hr/>	
Workout trends by age	Use Python pipeline to analyze time-series data; GPT summarizes insights for product team.
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Recommend clustering algorithms	GPT suggests methods based on dataset characteristics and task goals using RAG pipeline.
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Login alert	Use backend event triggers; GPT sends natural language alerts via email/SMS.
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<hr/> 4. Order/Shipping AI Agent <hr/>	
Real-time tracking	API integration with shipping partners; GPT summarizes tracking updates.
Restock suggestions	Inventory analysis + GPT recommendations using sales velocity and return rates.
Simple issue resolution	Intent detection + response templates using GPT; escalate complex cases.
<hr/> 5. Product Recommendation AI Agent <hr/>	
Recommend accessories	Preference and activity data fed to GPT; outputs tailored suggestions.
Best-selling bundles	Sales DB query + GPT summarization; ranks bundles by popularity.
Treadmill comparison	Structured product data used in GPT prompt; outputs comparison table.

Table 1: ChatGPT’s user-stories broken down.

In less than 200 words provide your answer for this requirement: Use ChatGPT to generate training and testing data that you will use in your design, implementation, and testing of every AI agent and its user-stories you listed above.

To train and test each AI agent and its user stories, synthetic and real-like data can be generated using ChatGPT with domain-specific prompts:

Business/Marketing AI Agent:

- *Training:* Campaign performance logs (CTR, ROI), customer segments, historical promotions.
- *Testing:* Simulated campaign summaries, A/B test results, fictional customer engagement profiles.

Data Science AI Agent:

- *Training:* User workout logs (heart rate, duration), age-group analytics, system usage metrics.
- *Testing:* Anonymized user stats with embedded trends, clustering examples, data science queries and labels.

Membership/Fraud Detection AI Agent:

- *Training:* Login event logs, suspicious activity patterns, fake support queries (e.g., "I can't access my account").
- *Testing:* Simulated fraud cases, password reset flows, security-related FAQs.

Order/Shipping AI Agent:

- *Training:* Sample order records, shipping statuses, return request templates.
- *Testing:* Delayed/missing package examples, shipping FAQs, inventory updates.

Product Recommendation AI Agent:

- *Training:* Product metadata (features, price), user purchase histories, browsing patterns.
- *Testing:* Mock user profiles, product comparison requests, personalization scenarios.

These datasets will allow prompt tuning, RAG testing, and intent classification validation, enabling robust evaluation across use cases.

Figure 5: ChatGPT, prompted with requirement #4, gave advice on obtaining test data.

Order ID	Customer Name	Product	Order Date	Shipping Status	Delivery Date	Carrier	Tracking Number	Issue Reported	Resolution Status
ORD001	Sarah Collins	Peloton Bike+	2025-04-10	Shipped	2025-04-15	FedEx	FX123...	None	N/A
ORD002	James Patel	Tread	2025-04-12	Delayed	2025-04-20	UPS	1Z999...	Weather delay	Pending
ORD003	Maria Gonzalez	Bike Mat + Shoes	2025-04-13	Delivered	2025-04-17	USPS	94001...	None	N/A
ORD004	Kevin Wu	Dumbbell Set	2025-04-14	In Transit	2025-04-19	DHL	DHL98...	None	N/A
ORD005	Linda Harper	Heart Rate Monitor	2025-04-10	Delivered	2025-04-13	FedEx	FX876...	Missing item	Under Investigation
ORD006	Omar Siddiqui	Apparel Bundle	2025-04-11	Returned	2025-04-16	UPS	1Z888...	Size issue	Refunded
ORD007	Aisha Khan	Resistance Bands	2025-04-13	Out for Delivery	2025-04-18	USPS	94001...	None	N/A
ORD008	Daniel Cho	Peloton Guide	2025-04-09	Lost in Transit	N/A	FedEx	FX000...	Not received	Replacement Shipped
ORD009	Rachel Adams	Yoga Accessories Set	2025-04-15	Processing	2025-04-22	N/A	N/A	None	N/A
ORD010	Marcus Lee	Water Bottle	2025-04-12	Delivered	2025-04-14	USPS	94001...	Wrong item received	Replacement In Progress

Table 2: ChatGPT’s generated order data (tracking numbers truncated for readability).

Create a similar table that has 15 rows of product details.

Here is a table with 15 rows of **Product Details** suitable for the Product Recommendation AI Agent. It includes relevant fields for personalization, recommendation, and support use cases.

Product ID	Product Name	Category	Price (USD)	Stock Status	Rating (1-5)	Compatible With	Top Features
PRD001	Peloton Bike+	Equipment	2,495.00	In Stock	4.9	Peloton App	Rotating screen, auto-resistance, HD touchscreen
PRD002	Peloton Tread	Equipment	3,495.00	In Stock	4.8	Peloton App	Shock-absorbing belt, incline control, large display
PRD003	Bike Mat	Accessories	59.00	In Stock	4.5	Peloton Bike, Bike+	Non-slip surface, sweat resistant
PRD004	Heart Rate Monitor	Accessories	90.00	In Stock	4.6	All Peloton Devices	Bluetooth, chest strap comfort
PRD005	Dumbbell Set (5-30 lbs)	Equipment	150.00	Limited Stock	4.7	Strength Workouts	Neoprene grip, color-coded
PRD006	Resistance Bands Set	Accessories	35.00	In Stock	4.4	Strength & Yoga	5 resistance levels, latex-free
PRD007	Peloton Guide	Equipment	295.00	In Stock	4.6	TV + Peloton App	Motion tracking, rep counting
PRD008	Cycling Shoes	Apparel	125.00	In Stock	4.3	Peloton Bike, Bike+	Delta cleats, breathable design
PRD009	Yoga Accessories Bundle	Accessories	99.00	Out of Stock	4.5	All Fitness Users	Mat, blocks, strap included
PRD010	Men's Workout Shorts	Apparel	49.00	In Stock	4.2	All Users	Quick-dry, zip pocket
PRD011	Women's Training Tank	Apparel	39.00	In Stock	4.4	All Users	Breathable mesh, racerback
PRD012	Water Bottle (32oz)	Accessories	25.00	In Stock	4.6	All Equipment	BPA-free, insulated
PRD013	Smart Weighing Scale	Equipment	129.00	In Stock	4.7	Peloton App	Body fat %, sync with app
PRD014	Foam Roller	Accessories	45.00	In Stock	4.3	Recovery Users	Deep tissue massage, portable
PRD015	Peloton App Membership	Digital Service	12.99/month	N/A	4.9	All Devices	Unlimited classes, live + on-demand

This table supports:

- Product recommendations based on user preferences.
- Compatibility checks and cross-sells.
- Queries on availability, pricing, and features.
- Training of GPT prompts for product comparison and user guidance.

Figure 6: ChatGPT's generated product data.

Create a similar table with test data for business/marketing.

Here is a **Business/Marketing Test Data Table** with 15 rows. It contains simulated campaign and customer engagement metrics that can be used to train or test the Business/Marketing AI Agent for use cases like reporting, segmentation, and trend analysis.

Campaign ID	Campaign Name	Channel	Target Segment	Start Date	End Date	Open Rate (%)	Click-Through Rate (%)	Conversions	Revenue (USD)	Status
CMP001	Spring Fitness Sale	Email	Existing Subscribers	2025-03-15	2025-03-31	48.2	12.4	350	17,500	Completed
CMP002	New Year Resolution Ads	Social Media	New Users (18-34)	2025-01-01	2025-01-10	N/A	5.6	220	11,000	Completed
CMP003	Referral Program Launch	Email + In-App	All Members	2025-04-01	2025-04-15	61.5	14.2	600	30,000	Completed
CMP004	App Download Promo	SMS	Leads from Web	2025-02-10	2025-02-28	32.1	7.8	120	6,000	Completed
CMP005	Mother's Day Gear Sale	Social Media	Female Users (25-44)	2025-05-01	2025-05-12	N/A	9.3	180	8,200	Active
CMP006	30-Day Free Trial Push	In-App	App Visitors	2025-03-01	2025-03-31	58.0	11.9	540	0	Completed
CMP007	Retargeting Abandoned Cart	Email	Cart Abandoners	2025-04-05	2025-04-20	45.6	13.6	160	7,900	Completed
CMP008	Tread Awareness Campaign	YouTube	General Public	2025-02-01	2025-02-20	N/A	4.2	90	13,500	Completed
CMP009	Loyalty Perks Announcement	Email	Long-term Subscribers	2025-04-10	2025-04-30	67.2	18.0	450	21,000	Active
CMP010	Flash Sale Alert	SMS	All Users	2025-03-20	2025-03-21	40.0	15.0	310	9,300	Completed
CMP011	Father's Day Challenge	In-App + Email	Male Users (30-55)	2025-06-01	2025-06-16	50.5	10.1	270	10,800	Planned
CMP012	Anniversary Sale	Email + Social	All Members	2025-04-15	2025-04-22	62.0	16.5	480	22,400	Completed
CMP013	Back-to-School Fitness	Social Media	Parents (25-45)	2025-08-15	2025-08-31	N/A	6.8	135	6,750	Planned
CMP014	Holiday Bundle Deals	Email + Web	Past Buyers	2024-12-01	2024-12-20	55.7	13.0	390	19,200	Completed
CMP015	New Feature Announcement	In-App	Active Users	2025-03-25	2025-04-05	70.3	20.5	610	0	Completed

This table supports:

- Campaign performance analysis by the AI agent.
- Audience segmentation for future targeting.
- Predictive modeling for open/click/conversion rates.
- GPT-based summary generation and campaign recommendations.

Figure 7: ChatGPT's generated marketing campaign data.

Create a similar table with test data for the membership and fraud detection agent.

Here is a **Membership and Fraud Detection Test Data Table** with 15 rows. This includes member activity, authentication behavior, and anomaly indicators—ideal for training/testing fraud detection, access control, and account support scenarios.

Member ID	Name	Signup Date	Membership Type	Last Login	Login Location	Failed Login Attempts	Support Requests	Fraud Flagged	Fraud Type (if any)	Resolution Status
MBR001	Alex Johnson	2024-05-01	Annual	2025-04-30	New York, USA	0	None	No	N/A	N/A
MBR002	Priya Shah	2024-08-22	Monthly	2025-05-02	Mumbai, India	2	Password reset	No	N/A	Resolved
MBR003	Marcus Reid	2025-01-10	Annual	2025-05-01	Los Angeles, USA	5	Unauthorized access alert	Yes	Credential Stuffing	Under Investigation
MBR004	Chen Li	2023-12-05	Trial	2025-01-10	Beijing, China	1	Billing issue	No	N/A	Resolved
MBR005	Sarah Kim	2025-03-15	Monthly	2025-04-25	Chicago, USA	0	Membership upgrade	No	N/A	Completed
MBR006	Omar Hassan	2024-10-12	Annual	2025-05-03	Riyadh, Saudi Arabia	7	Account lockout	Yes	Brute Force Login	Locked
MBR007	Emily Nguyen	2025-02-20	Trial	2025-04-10	San Jose, USA	0	None	No	N/A	N/A
MBR008	Diego Torres	2024-07-09	Monthly	2025-05-01	Mexico City, Mexico	3	Duplicate login detected	Yes	Session Hijacking	Mitigated
MBR009	Rachel Owens	2023-09-01	Annual	2025-04-20	Toronto, Canada	0	Email change request	No	N/A	Completed
MBR010	Hassan Ali	2025-04-01	Trial	2025-04-30	Unknown	10	Login failure	Yes	Suspicious IP Activity	Under Review
MBR011	Linda Foster	2024-11-15	Monthly	2025-04-28	Boston, USA	1	Inactive account recovery	No	N/A	Completed
MBR012	Jun Park	2023-06-11	Annual	2025-05-03	Seoul, South Korea	0	MFA setup issue	No	N/A	Resolved
MBR013	Elena Petrova	2024-02-03	Monthly	2025-04-18	Moscow, Russia	8	Multiple login failures	Yes	VPN Misuse	Warned
MBR014	Jack Taylor	2025-01-25	Trial	2025-02-10	Miami, USA	0	Cancel trial	No	N/A	Completed
MBR015	Amina Yusuf	2024-09-09	Annual	2025-05-03	Nairobi, Kenya	0	Device sync failure	No	N/A	Resolved

Use Cases Supported:

- Fraud pattern detection (e.g., excessive failed logins, unknown IPs).
- Response automation for common support scenarios.
- Membership tracking (type, status, activity).
- AI agent actions like flagging accounts, suggesting resets, or recommending upgrades.

Figure 8: ChatGPT’s generated membership and fraud data.

Create a similar table with test data for the Data Science agent.

Here is a **Data Science Agent Test Data Table** with 15 rows. This dataset simulates key business KPIs, customer behavior, and model-ready attributes that can be used by a data science agent for trend analysis, forecasting, and segmentation.

Record ID	Date	User Segment	Daily Active Users	Avg Session Time (min)	Churn Risk Score (0-1)	Avg Order Value (USD)	Predicted LTV (USD)	Workout Completion Rate (%)	Flag for Modeling
DS001	2025-04-01	New Users	3,200	18.4	0.45	85.20	540.00	72.5	Yes
DS002	2025-04-01	Returning Users	5,100	27.1	0.18	112.75	960.50	88.9	Yes
DS003	2025-04-01	Premium Members	2,800	42.7	0.05	155.00	1,400.00	95.6	Yes
DS004	2025-04-01	Trial Users	1,150	10.2	0.72	45.30	200.00	41.0	Yes
DS005	2025-04-01	Inactive >30 Days	300	3.1	0.95	22.00	75.00	12.5	Yes
DS006	2025-04-02	Returning Users	4,980	25.8	0.22	108.40	925.00	86.3	Yes
DS007	2025-04-02	Trial Users	1,200	11.0	0.68	47.20	210.00	43.2	Yes
DS008	2025-04-02	Premium Members	2,850	44.0	0.04	160.80	1,460.00	97.1	Yes
DS009	2025-04-02	Inactive >30 Days	310	3.3	0.94	20.50	60.00	10.4	Yes
DS010	2025-04-02	New Users	3,350	19.2	0.39	88.10	560.00	75.0	Yes
DS011	2025-04-03	Returning Users	5,200	26.7	0.20	110.60	945.00	89.1	Yes
DS012	2025-04-03	Trial Users	1,170	10.5	0.70	49.30	225.00	44.7	Yes
DS013	2025-04-03	Inactive >30 Days	290	2.9	0.97	18.90	50.00	9.8	Yes
DS014	2025-04-03	Premium Members	2,820	43.9	0.06	152.70	1,420.00	96.4	Yes
DS015	2025-04-03	New Users	3,400	18.9	0.42	90.50	580.00	73.8	Yes

Use Cases Supported by Data Science Agent:

- Forecasting daily active users or LTV using regression.
- Segmenting users by churn risk or engagement.
- Feeding ML models with labeled data (churn, LTV, value tiers).
- Creating dashboards or trend reports from KPIs.

Would you like tables like this for other AI agents too?

Figure 9: ChatGPT's generated data science and analytics data.

Create a table of prompts used for testing the agents with their expected outcomes.

Here's a table of sample prompts used to test each AI agent, along with their expected outcomes:

Agent	Test Prompt	Expected Outcome
Order/Shipping	"What's the shipment status of order ORD005?"	"Order ORD005 is marked as 'Shipped' and was dispatched on 2025-04-03."
Product	"List all fitness products under \$30 in stock."	Returns product list like Resistance Band, Jump Rope, Water Bottle, etc., each priced < \$30.
Marketing	"Which campaign had the highest conversion rate?"	"Black Friday campaign (C003) had the highest conversion rate at 3.5%."
Membership/Fraud	"Flag users with more than 2 reported issues and login frequency below 3."	"Users U002 and U005 flagged for review based on fraud detection criteria."
Data Science	"Predict churn risk for Trial Users segment."	"Trial Users have a churn risk score of 0.72 based on session time and activity level."
Order/Shipping	"List all orders placed on 2025-04-03 with status 'Processing'."	"Order ORD008 placed by Henry Cho is currently Processing."
Product	"What is the current stock for Smart Scale (P011)?"	"Smart Scale (P011) has 40 units in stock."
Marketing	"Summarize performance of the Spring Promo campaign."	"Spring Promo (C001): Click Rate 4.5%, Conversion Rate 2.1%, Targeted at New Users."
Membership/Fraud	"List Premium members with zero reported issues."	"Users U001 and U004 are Premium members with zero reported issues."
Data Science	"What is the predicted lifetime value of Returning Users?"	"The predicted LTV for Returning Users is \$960.5."

Let me know if you'd like this in a downloadable format (e.g., CSV or JSON).

Figure 10: ChatGPT's generated list of hypothetical user queries and expected output.