



Introduction to Agentic Workflows

Adv. Advisory | ACCTG 528 | Class 11
MPAcc Class of 2026

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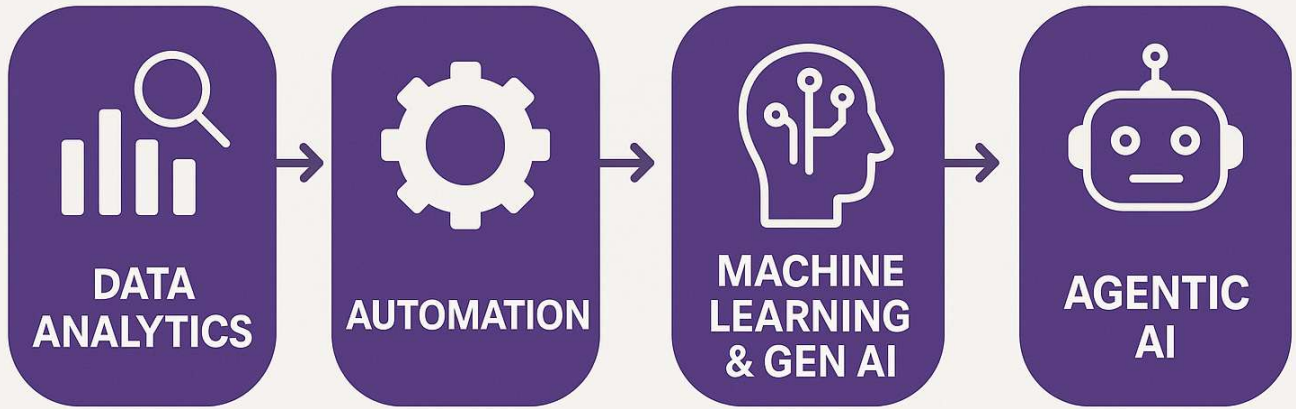
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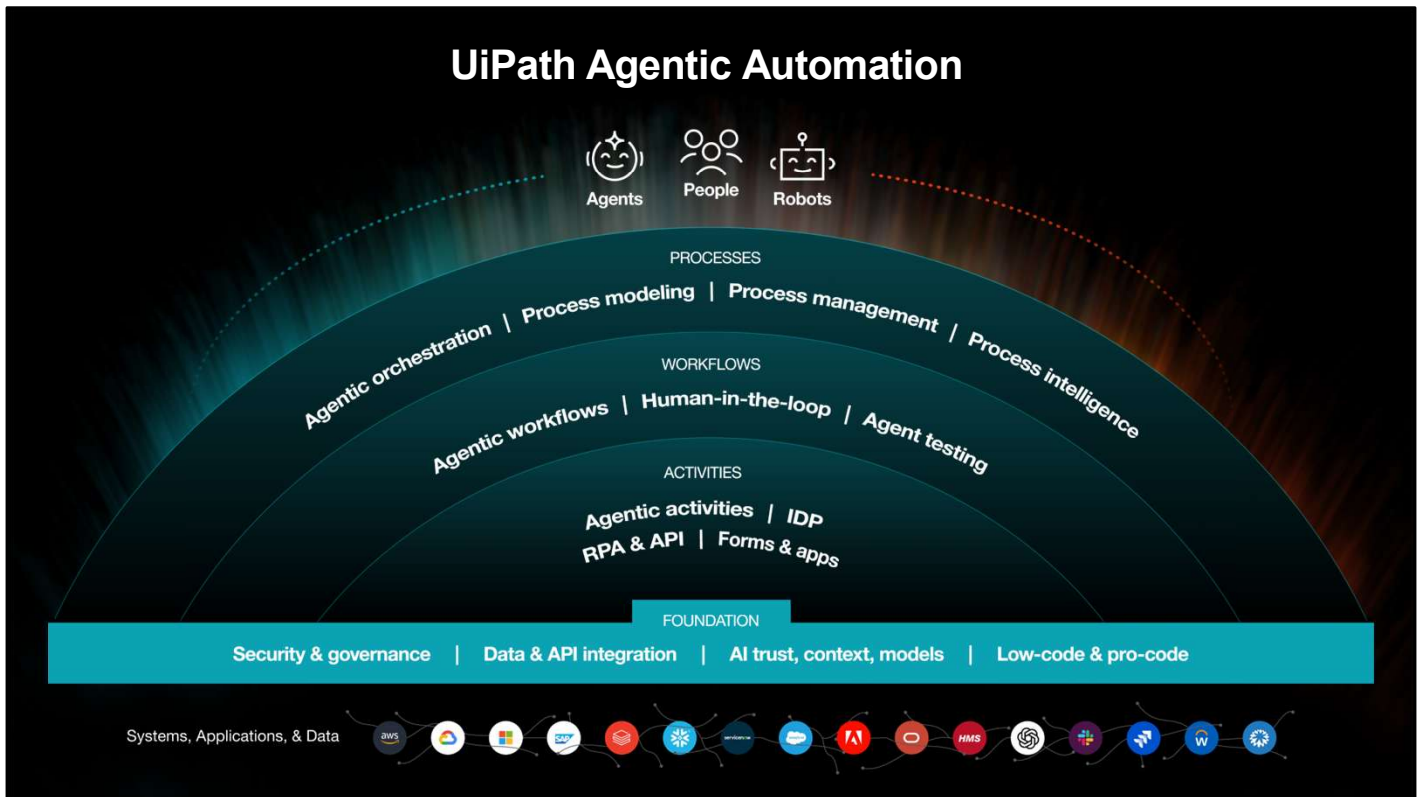
What will we do today?

- **Review**
 - **Workflows and Logic**
 - **The Data Validator Challenge**
- Intro to Agentic Workflows
 - Key terms
- Labs
 - System prompt
 - Maestro BPMN revision and extension
 - Team Exercise



Course Diagram (high-level)





- Everything happens in one place: the UiPath Platform—where AI Agents aren't just assistants, they're true work partners, transforming complexity into a seamless, orchestrated operation.

- We break it down into three powerful layers: **Activities** (the building blocks—reading, processing, integrating), **Workflows** (connecting the dots with human-in-the-loop and testing), and **Processes** (the big picture—managing, optimizing, and enhancing enterprise operations).

- Agentic Orchestration / Maestro takes automation even further—coordinating UiPath Agents, third-party AI models, people, robots, and tools into a single, intelligent system.

- Your existing systems don't need to be reinvented—our platform integrates seamlessly with your data, applications, and workflows while maintaining enterprise-grade security, governance, and AI trust.

- We're not just compatible with your tech stack—we enhance it. From cloud providers like AWS, Google, and Azure to enterprise apps like Salesforce and SAP, we turn digital chaos into a symphony of efficiency.

Looking ahead

Where do your individual and team projects go next?

Individual:

- Appropriate identification rules-based automation
- Selection of appropriate automation spectrum model

Team:

- Appropriate mix of RPA, Agent, and human in the loop
- Selection of best cases for agent decision enhancement

Workflows and Logic

- ✓ Inputs: Web-scraped data, spreadsheet data
- ✓ Loops: For each row; CurrentRow("Header")
- ✓ Outputs: Spreadsheet, email

- ✓ Cleaning steps appear logical
- ✓ Workflows logical
- ✓ Need to continue to ID the activities/tools in workflows
- ✓ Data cleaning in VB (using assign)

Data validator challenge

Old approach:

- Learn code from books / internet → Modify examples → Apply code

New Approach:

- LLM generates modified code → Apply code

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Key Terms

Generative AI: A subset of artificial intelligence that focuses on systems capable of generating new content such as text, images, audio, or code by learning patterns from training data and producing original outputs.

Large Language Models (LLMs): A class of generative artificial intelligence systems trained on vast corpora of text data to model linguistic patterns and relationships, enabling them to generate, interpret, and transform natural language. LLMs operate by predicting sequences of tokens based on contextual probabilities learned during training, allowing them to perform a wide range of tasks including text generation, summarization, translation, question answering, and code synthesis.

Key terms: Agentic

Agentic AI:

AI systems designed to operate with a degree of autonomy, persistence, and goal-orientation, often executing sequences of actions independently and adapting to changes in their environment or instructions.

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- **Labs**
 - **System prompt**
 - **Maestro BPMN revision and extension**
 - **Team Exercise**

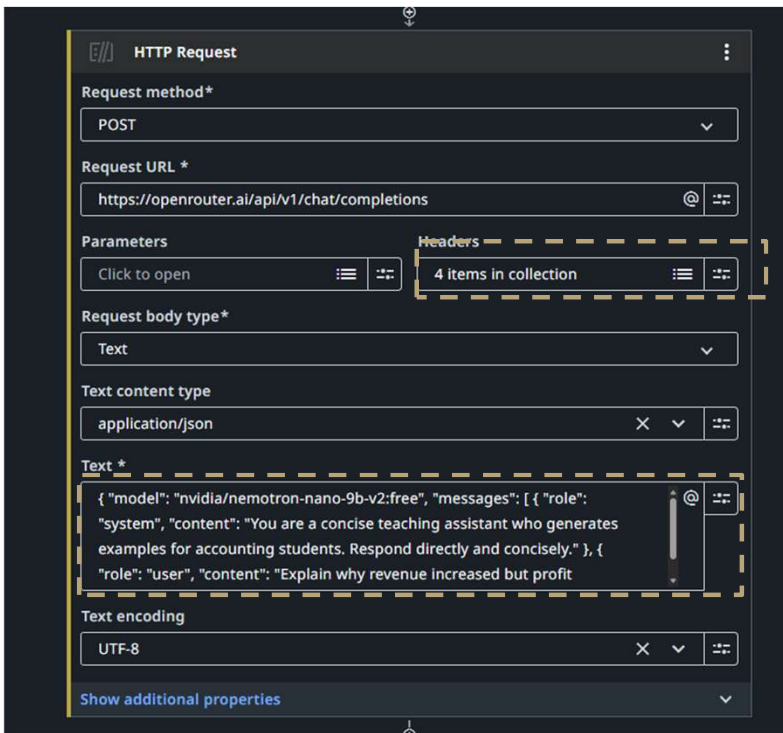


System prompt lab

Objective:

Work on the system prompt with a free tier LLM obtained from openrouter.ai

1. Sign up at openrouter.ai (link on class 11 page)
2. Upload openrouter_ai_starter.uis to UiPath cloud
3. Modify the workflow (add key, run, work on system prompt)



1. Update the Authorization field with your API key (leave Bearer) in both API calls

2. Compare the system prompts between API call 1 and 2

```
TEXT
{ "model": "nvidia/nemotron-nano-9b-v2:free", "messages": [ { "role":
"system", "content": "You are a concise teaching assistant who generates
examples for accounting students. Respond directly and concisely." }, {
"role": "user", "content": "Explain why revenue increased but profit
```

Dictionary editor

HTTP Request 1 > Headers ({} Dictionary<String, String>)

Key	Value
Authorization	Bearer
Content-Type	application/json
HTTP-Referer	https://www.uw.edu
X-Title	UiPath Teaching Demo

https://openrouter.ai/api/v1/chat/completions

Parameters Headers

Click to open 4 items in collection

Proper
Click on

Request URL: https://openrouter.ai/api/v1/chat/completions

VB Expression editor

HTTP Request > Text (Text String)

Fix {x} Insert variable

```
1 [{"model": "nvidia/nemotron-nano-9b-v2:free", "messages": [{"role": "system", "content": "You are a concise teaching assistant who generates examples for accounting students. Respond directly and concisely."}, {"role": "user", "content": "Explain why revenue increased but profit decreased using a software company as an example."}], "temperature": 0.3}]
```

Describe your expression here. Use Ctrl+Space to insert variables.

Expression output: Press test to view output

Test

Cancel Save

```
{
  "id": "gen-1777910675-Ft9jv9q1kWGm9SUXmxK3",
  "object": "chat.completion",
  "created": 1777910675,
  "model": "nvidia/nemotron-nano-9b-v2:free",
  "provider": "Nvidia",
  "system_fingerprint": null,
  "choices": [
    {
      "index": 0,
      "logprobs": null,
      "finish_reason": "stop",
      "native_finish_reason": "stop",
      "message": {
        "role": "assistant",
        "content": "\n\n**Example:** A software company launches a popular new app, boosting sales (revenue ↑). However, it also spends heavily on marketing, R&D, and hiring to scale, causing expenses to rise faster than revenue. Profit ↓ due to higher costs outweighing revenue growth.\n\nFirst, revenue increase could be from selling more software licenses or subscriptions. But profit decrease might be due to higher costs. Maybe they expanded rapidly, hiring more staff or investing in R&D. That would increase expenses.\n\nAnother angle: maybe they started offering more services or discounts. If they lower prices to attract more customers, revenue might still go up if volume increases enough, but the lower prices could reduce profit margins. Or maybe they have higher marketing costs to acquire new customers.\n\nAlso, one-time expenses could be a factor. Like a big acquisition or a lawsuit settlement. Even if revenue is up, a large unexpected cost could eat into profits.\n\nOr maybe they invested heavily in infrastructure or technology upgrades. Capital expenditures don't directly affect revenue but increase expenses.\n\nLet me structure this. Example: A software company launches a new product, increasing sales (revenue up). But they also spend a lot on marketing, R&D, and hiring. These costs rise more than the revenue increase, leading to lower profit.\n\nAlternatively, if they offer a subscription model with lower prices but higher volume. Suppose they reduce the price per subscription but get many more subscribers. Revenue might still go up if the volume compensates, but the lower per-unit profit could lead to overall lower profit if costs don't decrease proportionally.\n\nAnother point: maybe they have higher operating costs due to scaling. Like more servers, customer support, etc., as they grow. Fixed costs might not scale linearly with revenue.\n\nI should pick the most common scenario. Rapid expansion with high investment costs is a typical reason. So the example would be a software company increasing sales through new products or markets but facing higher costs from expansion, leading to lower profit despite higher revenue.\n\nreasoning_details": [
        {
          "type": "reasoning.text",
          "text": "Okay, the user wants an example of a software company where revenue goes up but profit goes down. Let me think about the possible reasons.\n\nFirst, revenue increase could be from selling more software licenses or subscriptions. But profit decrease might be due to higher costs. Maybe they expanded rapidly, hiring more staff or investing in R&D. That would increase expenses.\n\nAnother angle: maybe they started offering more services or discounts. If they lower prices to attract more customers, revenue might still go up if volume increases enough, but the lower prices could reduce profit margins. Or maybe they have higher marketing costs to acquire new customers.\n\nAlso, one-time expenses could be a factor. Like a big acquisition or a lawsuit settlement. Even if revenue is up, a large unexpected cost could eat into profits.\n\nOr maybe they invested heavily in infrastructure or technology upgrades. Capital expenditures don't directly affect revenue but increase expenses.\n\nLet me structure this. Example: A software company launches a new product, increasing sales (revenue up). But they also spend a lot on marketing, R&D, and hiring. These costs rise more than the revenue increase, leading to lower profit.\n\nAlternatively, if they offer a subscription model with lower prices but higher volume. Suppose they reduce the price per subscription but get many more subscribers. Revenue might still go up if the volume compensates, but the lower per-unit profit could lead to overall lower profit if costs don't decrease proportionally.\n\nAnother point: maybe they have higher operating costs due to scaling. Like more servers, customer support, etc., as they grow. Fixed costs might not scale linearly with revenue.\n\nI should pick the most common scenario. Rapid expansion with high investment costs is a typical reason. So the example would be a software company increasing sales through new products or markets but facing higher costs from expansion, leading to lower profit despite higher revenue.\n\n",
        }
      ],
      "usage": {
        "prompt_tokens": 48,
        "completion_tokens": 435,
        "total_tokens": 483,
        "cost": 0,
        "is_byok": false,
        "prompt_tokens_details": {
          "cache_read_tokens": 0,
          "cache_write_tokens": 0,
          "audio_tokens": 0,
          "video_tokens": 0,
          "cost_details": {
            "upstream_inference_cost": 0,
            "upstream_inference_completions_cost": 0,
            "completion_tokens_details": {
              "reasoning_tokens": 514,
              "image_tokens": 0,
              "audio_tokens": 0
            }
          }
        }
      }
    }
  ]
}
```

```
{
  "id": "gen-1777910699-NYdjHWJoipF7hDXnPJa7",
  "object": "chat.completion",
  "created": 1777910699,
  "model": "nvidia/nemotron-
  nano-9b-
  v2:free",
  "provider": "Nvidia",
  "system_fingerprint": null,
  "choices": [
    {
      "index": 0,
      "logprobs": null,
      "finish_reason": "stop",
      "native_finish_rea
      son": "stop",
      "message": {
        "role": "assistant",
        "content": "TechSoft Inc. sees rising revenue from a popular new app, but profit falls
        due to heavy R&D spending and marketing costs to sustain
        growth.\n",
        "refusal": null
      }
    }
  ],
  "usage": {
    "prompt_tokens": 59,
    "completion_tokens": 241,
    "total_tokens": 300,
    "cost": 0,
    "is_byok": false,
    "prompt_tokens_details": {
      "cached_tokens": 0,
      "cache_write_tokens": 0,
      "audio_tokens": 0,
      "video_tokens": 0
    },
    "cost_details": {
      "upstream_i
      nference_cost": 0,
      "upstream_inference_prompt_cost": 0,
      "upstream_inference_completions_cost": 0
    },
    "completion_tokens_details": {
      "reasoning_tokens": 262,
      "image_tokens": 0,
      "audio_tokens": 0
    }
  }
}
```

Maestro lab

Objective:

Work on a combined RPA and single agent workflow using UiPath's Maestro product.

1. Upload the revenue_analyzer.uis example maestro workflow.
2. Change the send to email in RPA: Send Email workflow.
3. Modify the system prompt / user prompt → broaden, deliver from external source, etc.
4. Modify the input mechanism(s) for the tools (can you change this to another company for example, triggered by email?)

UiPath Studio Revenue_analyzer_agent > Agentic Process Saved recently

Debug Debug step-by-step Publish Submit as template Share

Explorer Process.bpmn

- Revenue_analyzer_agent
 - Agent
 - Agentic Process
 - Process.bpmn
 - RPA_Email_Response
 - Main.xaml
 - RPA_Get_MDA
 - Main.xaml
 - RPA_Get_Revenue
 - Main.xaml

Start event

RPA: Generate Revenue Table

RPA: Scrape MD & A

Revenue Analyzer Agent

RPA: Send email

Properties XML

Process

General

Name Process

Description

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UiPath Studio Revenue_analyzer_agent_v2 > Agentic Process Saved recently

Debug Debug step-by-step Publish

Explorer Main.xml Process.bpmn

- Revenue_analyzer_agent_v2
 - Agent
 - Agentic Process
 - Process.bpmn
 - RPA_Email_Response
 - Main.xml
 - RPA_Get_MDA
 - Main.xml
 - RPA_Get_Revenue
 - Main.xml

```
graph LR; Start((Start event)) --> Split{+}; Split --> RPA1[RPA: Gen Revenue Table]; Split --> RPA2[RPA: Scrape MD&A]; RPA1 --> Join{+}; RPA2 --> Join; Join --> Agent[Revenue Analyzer Agent]; Agent --> RPA3[RPA: Send email];
```

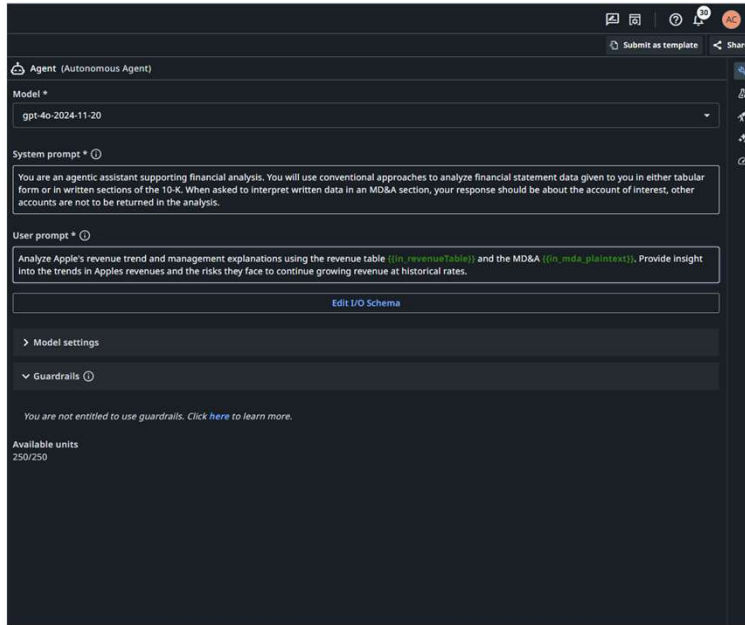
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The screenshot shows the UiPath Studio interface for configuring an Autonomous Agent. The central workspace displays a diagram with 'Escalations' at the top, 'Agent Autonomous Agent' in the middle, and 'Context' and 'Tools' at the bottom. The right-hand pane shows the 'Agent (Autonomous Agent)' configuration, including a model selection dropdown set to 'gpt-4o-2024-11-20', system and user prompts, and model settings.



Teams

Objective:

Finalize topic selection (teams are in Canvas) fill out our table.

Final topic Selections

Team	Topic
Automata Imperium	
Data Dominus	
Fluxus Digitalis	
Intellectus Agens	
Machina Cognita	
Ordo Mechanicus	
Praxis Automata	
Processus Nexus	
Ratio Automata	

Thank you

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