CLAIMS:

1. A method for autonomously processing a book-keeping and accounting request using an artificial intelligence (AI) worker that is communicatively coupled to an email service, the method comprising:

receiving, using the email service, the book-keeping and accounting request whereby the request is in an email format;

extracting, using the email service, contents of the request and metadata from the received request and providing the extracted contents of the request and the metadata to the AI worker;

identifying, using a large language model (LLM) and a prompt-chaining model provided within the AI worker, intents and key elements associated with each of the intents based on the contents of the request and the metadata, whereby the prompt-chaining model is configured to assist the LLM understand job-specific accounting vocabulary, task definitions and examples;

identifying, using the AI worker, a task agent to be used to process each of the identified intents and the key elements associated with each of the identified intents based on features of each of the identified intents, wherein each task agent is associated with multi-step plans and each step in each of the multi-step plans is processed by a corresponding tool;

processing, using the AI worker, each of the intents and key elements associated with each of the intents using a task agent identified for the intent by executing all the steps of an autonomously selected multi-step plan associated with the identified task agent using tools associated with each step in the autonomously selected multi-step plan; and

collecting, using the AI worker, outcomes from all the task agents and generating a natural language processed email to be used as a response to the book-keeping and accounting request, using the LLM, based on the collected outcomes.

2. The method according to claim 1, wherein the key elements comprise instructions corresponding to the primary intent, references to items associated with the primary intent, temporal data associated with the primary intent or accounting domain terminology associated with the primary intent.

3. The method according to claim 1, wherein the tools corresponding to each step in each of the multi-step plans comprises domain-specific accounting and bookkeeping functionalities, general system functionalities, financial data retrieval functionalities, payment processing functionalities and accessing of public data functionalities.

4. The method according to claim 1 wherein the step of identifying intents and key elements associated with each of the intents based on the contents of the request and the metadata, further comprises the

step of providing, using a long-term memory component provided within the AI worker, historical context of prior user interactions, requests, and learned preferences to the LLM to assist the LLM understand the job-specific accounting vocabulary, task definitions and examples.

5. The method according to claim 1, wherein before the step of collecting outcomes from all the task agents and the generating of the natural language processed email based on the collected outcomes, the method further comprises the step of:

processing locally, using the AI worker, each of the intents and key elements associated with each of the intents using parsers, calculators and conditional edge rules,

wherein the step of collecting the outcomes from the task agent further comprises the step of collecting outcomes processed from the parsers, the calculators and the conditional edge rules.

6. A system for autonomously processing a book-keeping and accounting request comprising:

an email service configured to:

receive the book-keeping and accounting request whereby the request is in an email format;

extract contents of the request and metadata from the received request; and

provide the extracted contents of the request and the metadata to an AI worker communicatively coupled to the email service;

the AI worker being configured to:

identify using a large language model (LLM) and a prompt-chaining model intents and key elements associated with each of the intents based on the contents of the request and the metadata, whereby the prompt-chaining model is configured to assist the LLM understand job-specific accounting vocabulary, task definitions and examples;

identify a task agent to be used to process each of the identified intents and the key elements associated with each of the identified intents based on features of each of the identified intents, wherein each task agent is associated with multi-step plans and each step in each of the multi-step plans is processed by a corresponding tool;

process each of the intents and key elements associated with each of the intents using a task agent identified for the intent by executing all the steps of an autonomously selected multi-step plan associated with the identified task agent using tools associated with each step in the autonomously selected multi-step plan; and

collect outcomes from all the task agents and generate a natural language processed email, using the LLM, based on the collected outcomes.

7. The system according to claim 6, wherein the key elements comprise instructions corresponding to the primary intent, references to items associated with the primary intent, temporal data associated with the primary intent or accounting domain terminology associated with the primary intent.

8. The system according to claim 6, wherein the tools corresponding to each step in each of the multi-step plans comprises domain-specific accounting and bookkeeping functionalities, general system functionalities, financial data retrieval functionalities, payment processing functionalities and accessing of public data functionalities.

9. The system according to claim 6 wherein the identification of intents and key elements associated with each of the intents based on the contents of the request and the metadata by the AI worker further comprises the AI worker being configured to:

    provide using a long-term memory component provided within the AI worker, historical context of prior user interactions, requests, and learned preferences to the LLM to assist the LLM understand the job-specific accounting vocabulary, task definitions and examples.

10. The system according to claim 6, wherein before the AI worker is configured to collect outcomes from all the task agents and generate the natural language processed email based on the collected outcomes, the AI worker is further configured to:

    process locally each of the intents and key elements associated with each of the intents using parsers, calculators and conditional edge rules,

    wherein the collection of the outcomes from the task agent further comprises the AI worker being configured to collect outcomes processed from the parsers, the calculators and the conditional edge rules.