**Actors Prompt:**

An engineer is working on a set of user stories enclosed between triple back ticks.

``` As a researcher, I want to be able to search across photo collection images, so that I can prepare presentations.

As a researcher, I want to search using structured data, so that I can find everything relevant to my inquiry across collections.

As a researcher, I want to access tagged working papers, so that my research process is better informed.

As a researcher, I want to access educational outreach materials, so that I can make connections with institutions.

As a researcher, I want to have accurate cross-collection citation information, so that I can find materials again.

As a researcher, I want to access digitized archival materials without mediation, so that I can decide what, I want to look at.```

He created an initial goal model with the intentional elements enclosed between triple quotes:

‘’’

- 'Actors':

-researcher

- 'Goals':

-access operations conducted

-have operations conducted

-search operations conducted

-access digitized archival materials

-access educational outreach materials

-structured data searched

-photo collection images searched

have accurate cross~~-~~collection citation information

'''

The created model is missing many intentional elements. Let us refine the goal model step by step. First, can you list all 'Actors' for the user stories enclosed between triple back ticks. An initial set of actors are added in the enclosed between triple quotes. You must also identify any missing and implicit actors. It is critical that you answer only as a bulleted list and do not include any explanation.

'Actors':

researcher

system (implicit)

institutions (implicit)

working papers (implicit)

**Goals**

The initial goal model does not contain all the stakeholder’s objectives or goals that are conveyed in the user stories enclosed between triple back ticks. Identify any goals explicitly mentioned in the user stories enclosed between triple back ticks as well as any implicit goals. It is critical that you answer only as a bulleted list and do not include any explanation.

'Goals':

* + access operations conducted
  + have operations conducted
  + search operations conducted
  + access digitized archival materials
  + access educational outreach materials
  + structured data searched
  + photo collection images searched
  + have accurate cross-collection citation information
  + find everything relevant to inquiry across collections
  + research process better informed
  + make connections with institutions
  + decide what to look at

**IE Links for Goals**

Connect the goals from the previous step to the actors. It is critical that you answer only as a bulleted list that adheres to the following format.

<a actor>: <a hyphenated list of associated goals>

Do not include any explanation.

**Tasks for Goals**

Please provide a detailed breakdown of tasks for each of the following goals, created in the previous response. It is critical that you answer only as a bulleted list that adheres to the following format.

<a goal>: <a hyphenated list of tasks to achieve the goal>

Do not include any explanation.

* access operations conducted:
  + implement a search functionality for photo collection images
  + develop a system for accessing tagged working papers
* have operations conducted:
  + provide accurate cross-collection citation information system
* search operations conducted:
  + enable search using structured data
* access digitized archival materials:
  + create a system for accessing digitized archival materials without mediation
* access educational outreach materials:
  + develop a system for accessing educational outreach materials
* structured data searched:
  + implement search functionality using structured data
* photo collection images searched:
  + develop a system for searching across photo collection images
* have accurate cross-collection citation information:
  + provide accurate cross-collection citation information
* find everything relevant to inquiry across collections:
  + enable comprehensive search functionality across all collections
* research process better informed:
  + develop a system for accessing tagged working papers
* make connections with institutions:
  + provide access to educational outreach materials
* decide what to look at:
  + create a system for accessing digitized archival materials without mediation

**IE Links for Tasks of Goals**

Connect the tasks of goals from the previous step to the actors. It is critical that you answer only as a bulleted list that adheres to the following format.

<a actor>: <a hyphenated list of associated tasks of goals>

Do not include any explanation.

**Soft Goals**

Next, there are no soft goals in the initial goal model. Please suggest soft goals. Note you must identify any soft goals explicitly mentioned in the user stories enclosed between triple back ticks as well as any implicit soft goals. It is critical that you answer only as a bulleted list and do not include any explanation.

'SoftGoals':

* + improved research process
  + enhanced decision-making
  + efficient retrieval of materials
  + seamless access to information
  + accurate citation management
  + enhanced research outcomes

**IE Links for Soft Goals**

Connect the soft goals created in the previous step to the actors. It is critical that you answer only as a bulleted list that adheres to the following format.

<a actor>: <a hyphenated list of associated soft goals>

Do not include any explanation.

**Tasks for Soft Goals**

Next, the initial goal model misses different tasks that can be undertaken to achieve goals and soft goals.

Please provide a detailed breakdown of tasks for each soft goal created in the previous response. You can generate a variable number of tasks for soft goals. It is critical that you answer only as a bulleted list that adheres to the following format.

<a soft goal>: <list of tasks to achieve the soft goal>

Do not include any explanation.

* improved research process:
  + develop an advanced search algorithm for comprehensive information retrieval
  + implement a personalized recommendation system for relevant materials
  + provide user-friendly interfaces for efficient research navigation
* enhanced decision-making:
  + create a system for tracking research progress and insights
  + implement data visualization tools for better understanding of information
  + establish a feedback mechanism for user input on decision-making processes
* efficient retrieval of materials:
  + optimize search algorithms for quick and accurate results
  + implement filters for refined search options
  + provide a tagging system for easy categorization and retrieval
* seamless access to information:
  + develop a user-friendly interface for easy navigation of resources
  + ensure compatibility with various devices for seamless access
  + establish a secure login system for personalized access
* accurate citation management:
  + implement an automated citation generation feature
  + provide tools for citation verification and correction
  + integrate citation management services for easy referencing
* enhanced research outcomes:
  + conduct user surveys for feedback on research outcomes
  + analyze user behavior to improve research outcomes
  + collaborate with stakeholders to enhance research processes

**IE Links for Tasks of Soft Goals**

Connect the tasks of soft goals from the previous step to the actors. It is critical that you answer only as a bulleted list that adheres to the following format.

<a actor>: <a hyphenated list of associated tasks of soft goals>

Do not include any explanation.

**Contribution Links**

The Contributionrelationship statement describes how softgoals, task, believes, or links contribute to the satisficing of another intentional element. The five categories of Contribution Links are enclosed between triple back-ticks symbols.

``` MAKE : The contribution of the contributing element is positive and sufficient. BREAK : The contribution of the contributing element is negative and sufficient. HELP : The contribution of the contributing element is positive but not sufficient. HURT : The contribution of the contributing element is negative but not sufficient. EQUAL : There is equal contribution in both directions. ```

Please suggest different contribution links to link all the intentional elements such as, goals, soft goals, Tasks, and Resources that you identified. Note you must identify any contributions links that explicitly mentioned in the user stories enclosed between triple back ticks as well as any hidden contribution links. It is critical that you answer only as a bulleted list that adheres to the following format.

<Contribution Link Category>::<Source intentional elements> : <Destination intentional elements>

* MAKE::researcher : improved research process
* MAKE::researcher : enhanced decision-making
* MAKE::researcher : efficient retrieval of materials
* MAKE::researcher : seamless access to information
* MAKE::researcher : accurate citation management
* MAKE::researcher : enhanced research outcomes
* MAKE::improved research process : access operations conducted
* MAKE::enhanced decision-making : access operations conducted
* MAKE::enhanced decision-making : efficient retrieval of materials
* MAKE::efficient retrieval of materials : access operations conducted
* MAKE::efficient retrieval of materials : enhanced decision-making
* MAKE::seamless access to information : access operations conducted
* MAKE::seamless access to information : enhanced decision-making
* MAKE::seamless access to information : efficient retrieval of materials
* MAKE::accurate citation management : access operations conducted
* MAKE::accurate citation management : enhanced decision-making
* MAKE::accurate citation management : efficient retrieval of materials
* MAKE::accurate citation management : seamless access to information
* MAKE::enhanced research outcomes : access operations conducted
* MAKE::enhanced research outcomes : efficient retrieval of materials
* MAKE::enhanced research outcomes : accurate citation management

**Dependencies Links**

The Dependency statement of GRL describes an intentional relationship between two actors, i.e., one actor (the Depender) depends on another actor (the Dependee) on something (the Dependum). Noite that the dependum is optional.

Please suggest different Dependency links to link all the intentional elements such as, goals, soft goals, Tasks, and Resources that you identified. Note you must identify any Dependency links that explicitly mentioned in the user stories enclosed between triple back ticks as well as any hidden Dependency links. It is critical that you answer only as a bulleted list that adheres to the following format.

<Depender> DEPENDES-ON <Dependee> FOR <Dependum>

* researcher DEPENDS-ON system FOR search operations conducted
* researcher DEPENDS-ON system FOR access operations conducted
* researcher DEPENDS-ON system FOR have operations conducted
* researcher DEPENDS-ON system FOR access digitized archival materials
* researcher DEPENDS-ON system FOR access educational outreach materials
* researcher DEPENDS-ON system FOR structured data searched
* researcher DEPENDS-ON system FOR photo collection images searched
* researcher DEPENDS-ON system FOR accurate cross-collection citation information
* improved research process DEPENDS-ON efficient retrieval of materials FOR optimized search algorithms
* enhanced decision-making DEPENDS-ON improved research process FOR personalized recommendation system
* efficient retrieval of materials DEPENDS-ON seamless access to information FOR filters and tagging system
* seamless access to information DEPENDS-ON accurate citation management FOR secure login system
* accurate citation management DEPENDS-ON enhanced research outcomes FOR automated citation generation feature

**Resources**

**Not used because Dependum identified in the previous prompt are the resources.**

A resource is an (physical or informational) entity, with which the main concern is whether it is available. The initial goal model with the intentional elements enclosed between triple quotes does not have resources. Identify resources that are explicitly mentioned in the user stories enclosed between triple back ticks as well as any implicit resources. It is critical that you answer only as a bulleted list and do not include any explanation.



**Decomposition Links**

DECOMPOSITON statement provides the ability to define what other elements need to be achieved or available in order for a task to perform. Note that only Task and Goal can be decomposed into goal, task, resource, and softgoal. A Task Decomposition Structure shows the essential components of a task, which include subtasks that must be performed, subgoals that must be achieved, resources that must be accessible, and softgoals that must be satisfied. Similarly, a Goal Decomposition Structure connects a goal with its sub-goals directly, which is a short hand form of one Goal Means\_Ends Structure and the related Task Decomposition Structure.  The three categories of Decomposition Links are enclosed between triple back-tick symbols.

``` AND DECOMPOSITON: The relations between the dependent elements are “AND”. Each of the sub-components are necessary. OR DECOMPOSITON : The relations between the contributing elements are “OR”. Any of the sub-components is sufficient. XOR DECOMPOSITON: The relations between the contributing elements are “XOR”. Either of the sub-components are necessary, but not both. ```

Please suggest different Decomposition links to link all the intentional elements such as, goals, soft goals, Tasks, and Resources that you identified. Note you must identify any Decomposition links that explicitly mentioned in the user stories enclosed between triple back ticks as well as any hidden Decomposition links. It is critical that you answer only as a bulleted list that adheres to the following format.

< Decomposition Type>::<Source intentional elements> : <Destination intentional elements>

* AND DECOMPOSITION::researcher : search operations conducted : [implement search functionality for photo collection images, develop a system for accessing tagged working papers]
* AND DECOMPOSITION::researcher : access operations conducted : [implement a search functionality for photo collection images, develop a system for accessing tagged working papers]
* AND DECOMPOSITION::researcher : have operations conducted : [provide accurate cross-collection citation information system]
* AND DECOMPOSITION::researcher : access digitized archival materials : [create a system for accessing digitized archival materials without mediation]
* AND DECOMPOSITION::researcher : access educational outreach materials : [develop a system for accessing educational outreach materials]
* AND DECOMPOSITION::researcher : structured data searched : [implement search functionality using structured data]
* AND DECOMPOSITION::researcher : photo collection images searched : [develop a system for searching across photo collection images]
* AND DECOMPOSITION::researcher : have accurate cross-collection citation information : [provide accurate cross-collection citation information]

**Generate XML using Fewshot examples:**

Please create an XML that includes all the outputs that you generated so far. An example of the right output is shown between triple back ticks.

```

<?xml version='1.0' encoding='ISO-8859-1'?>

<grl-catalog catalog-name="URNspec" description="" author="vaish">

<element-def>

<intentional-element id="72" name="Car objects" description="" type="Ressource" decompositiontype="And"/>

<intentional-element id="80" name="Easy to use" description="" type="Softgoal" decompositiontype="And"/>

<intentional-element id="82" name="Realistic simulation" description="" type="Softgoal" decompositiontype="And"/>

<intentional-element id="84" name="Simple design" description="" type="Softgoal" decompositiontype="And"/>

<intentional-element id="88" name="Generate cars" description="" type="Goal" decompositiontype="And"/>

<intentional-element id="96" name="Create new cars" description="" type="Task" decompositiontype="And"/>

<intentional-element id="98" name="Keep same cars" description="" type="Task" decompositiontype="And"/>

</element-def>

<link-def>

<contribution name="Contribution105" description="" srcid="96" destid="82" contributiontype="Unknown" quantitativeContribution="0" correlation="false"/>

<contribution name="Contribution106" description="" srcid="96" destid="84" contributiontype="Unknown" quantitativeContribution="0" correlation="false"/>

<decomposition name="Decomposition111" description="" srcid="96" destid="88"/>

<decomposition name="Decomposition114" description="" srcid="98" destid="88"/>

<dependency name="Dependency116" description="" dependerid="88" dependeeid="72"/>

</link-def>

<actor-def>

<actor id="11" name="Traffic Simulator" description=""/>

</actor-def>

<actor-IE-link-def>

<actorContIE actor="11" ie="72"/>

<actorContIE actor="11" ie="80"/>

<actorContIE actor="11" ie="82"/>

<actorContIE actor="11" ie="84"/>

<actorContIE actor="11" ie="88"/>

<actorContIE actor="11" ie="96"/>

<actorContIE actor="11" ie="98"/>

</actor-IE-link-def>

</grl-catalog>

```

The generated XML must adhere to the below list of criteria.

• No duplicate values for 'name' attribute in XML

• No duplicate values for 'id' attribute? in XML

• No empty string as a value for 'name' attribute

• If you include Date attributes 'modified' and 'created', the values of 'modified' attribute must be greater than the value of 'created' attribute

• The XML must not have an empty grl-catalog element

• Do not add elements outside the section named 'grl-catalog'

• In the XML, element named 'intentional-element' must have non-empty values for following attributes- name, id, type

• XML must have section 'actor-def' consisting of actors

• In the XML, each actor element has an 'id' attribute. Do not use the value of 'id' attribute of an actor element as the value for 'srcid' or 'destid' attributes within the section named 'link-def'

• XML must have a section with title 'actor-IE-link-def'

• Within the section with name 'actor-IE-link-def', no two elements with different value for 'actor' attribute, have same value for 'ie' attribute"

• For an element named 'intentional-element', the value for the attribute 'type' of the tag must be one of the following values - Task, Goal, Softgoal, Resource, Belief?"

• For an element named 'intentional-element', the value for the attribute 'decompositiontype' of the tag must be one of the following values - AND, OR, XOR

• For an element with name 'contribution', the value for the attribute 'contributiontype' of the tag must be one of the following values- Make, Help, Break, Hurt

• For an element with name 'contribution', the values for attributes- srcid and destid, in each tag must be different

• Each element with name 'contribution', must have attribute 'srcid' and its value must not be empty string

• Each element with name 'contribution' must have attribute 'destid' and its value must not be empty string

• Each element with name 'decomposition' must have attribute 'srcid' and its value must not be empty string

• Each element with name 'decomposition' must have attribute 'destid' and its value must not be empty string

• Each element with name 'decomposition', must have different the values for attributes- 'srcid' and destid'