**Actors Prompt:**

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

``` As a depositor, I want to have guarantees about data integrity, so that I can use my data in the future and I can fulfil funder requirements for archival.

As a depositor, I want to attach subject specific discoverability metadata to records, so that researchers in my discipline can find my data more easily.

As a depositor, I want to link to data stored in external repositories, so that I can store my data in an appropriate repository but still register it with the University and I don't have to deposit my data in multiple places.

As a depositor, I want to specify a disposal policy for my data, so that I do not accidentally breach laws or collaboration agreements.

As a fundingbody, I want to be reassured that researchers I fund have robust archival plans for their data, so that I can be sure that funding them is a worthwhile investment.

As a fundingbody, I want to harvest metadata on outputs from research I fund, so that I can analyse effectiveness of funding strategy and I can encourage cross fertilisation of research outputs.```

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

‘’’

- 'Actors':

-depositor

-fundingbody

- 'Goals':

-specify operations conducted

-attach operations conducted

-reassured operations conducted

-specify a disposal policy

-subject specific discoverability metadata attached

-reassured robust archival plans

'''

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:
  + depositor
  + fundingbody
  + researchers
  + external repository

Missing Actors:

* University
* Collaboration partners

**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:

* have guarantees about data integrity
* attach subject specific discoverability metadata to records
* link to data stored in external repositories
* specify a disposal policy for data
* be reassured that researchers have robust archival plans
* harvest metadata on outputs from research funded
* analyze effectiveness of funding strategy
* encourage cross-fertilization of research outputs

Implicit Goals:

* Ensure compliance with laws and collaboration agreements
* Improve data discoverability
* Reduce duplication of data storage across repositories

**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.

* have guarantees about data integrity:
  + Implement data validation checks
  + Set up regular data backup procedures
  + Define data access controls
* attach subject specific discoverability metadata to records:
  + Develop a metadata schema for different disciplines
  + Create a metadata tagging system
  + Integrate metadata attachment feature into the data submission process
* link to data stored in external repositories:
  + Establish data linkage protocols with external repositories
  + Implement data synchronization mechanisms
  + Ensure data interoperability between different repositories
* specify a disposal policy for data:
  + Define data retention periods
  + Implement data anonymization procedures
  + Establish data deletion protocols
* be reassured that researchers have robust archival plans:
  + Review researchers' data management plans
  + Provide guidance on best practices for data archival
  + Conduct audits of archival procedures
* harvest metadata on outputs from research funded:
  + Develop automated metadata harvesting tools
  + Integrate metadata harvesting into the research funding process
  + Analyze harvested metadata for insights
* analyze effectiveness of funding strategy:
  + Define key performance indicators for funding effectiveness
  + Collect and analyze data on research outputs and outcomes
  + Generate reports on funding impact and ROI
* encourage cross-fertilization of research outputs:
  + Facilitate collaboration between funded researchers
  + Create platforms for knowledge sharing and exchange
  + Promote interdisciplinary research initiatives

**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:

* + Ensure data discoverability
  + Enhance data security measures
  + Foster data sharing and collaboration
  + Facilitate compliance with data management policies

Implicit SoftGoals:

* Improve data quality and accuracy
* Promote data preservation and longevity
* Encourage research reproducibility
* Enhance user satisfaction and usability

**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.

* Ensure data discoverability:
  + Implement metadata tagging system
  + Enhance search functionality for data discovery
  + Develop data classification scheme
  + Provide user training on effective data search techniques
* Enhance data security measures:
  + Implement encryption protocols for data at rest and in transit
  + Conduct regular security audits and vulnerability assessments
  + Establish access control mechanisms for sensitive data
  + Monitor data access and usage for suspicious activities
* Foster data sharing and collaboration:
  + Create data sharing policies and guidelines
  + Implement secure data sharing platforms
  + Facilitate collaborative data analysis tools
  + Encourage interdepartmental data sharing initiatives
* Facilitate compliance with data management policies:
  + Develop data management policy framework
  + Provide training on data management best practices
  + Conduct regular audits to ensure policy adherence
  + Implement data governance structure and oversight mechanisms

**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::ensure data discoverability : attach subject specific discoverability metadata to records
* MAKE::enhance data security measures : ensure data discoverability
* MAKE::foster data sharing and collaboration : link to data stored in external repositories
* HELP::facilitate compliance with data management policies : specify a disposal policy for data
* HELP::enhance data security measures : ensure data discoverability
* HURT::foster data sharing and collaboration : specify a disposal policy for data
* EQUAL::ensure data discoverability : enhance data security measures

**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>

* ensure data discoverability DEPENDS-ON attach subject specific discoverability metadata to records FOR metadata tagging system
* enhance data security measures DEPENDS-ON ensure data discoverability FOR data access controls
* foster data sharing and collaboration DEPENDS-ON link to data stored in external repositories FOR data synchronization mechanisms
* facilitate compliance with data management policies DEPENDS-ON specify a disposal policy for data FOR data retention periods
* enhance data security measures DEPENDS-ON foster data sharing and collaboration FOR access control mechanisms

**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::attach subject specific discoverability metadata to records : Develop a metadata schema for different disciplines
* AND DECOMPOSITION::ensure data discoverability : Implement metadata tagging system
* OR DECOMPOSITION::enhance data security measures : Implement encryption protocols for data at rest OR Implement encryption protocols for data in transit
* XOR DECOMPOSITION::foster data sharing and collaboration : Create data sharing policies OR Implement secure data sharing platforms

**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'