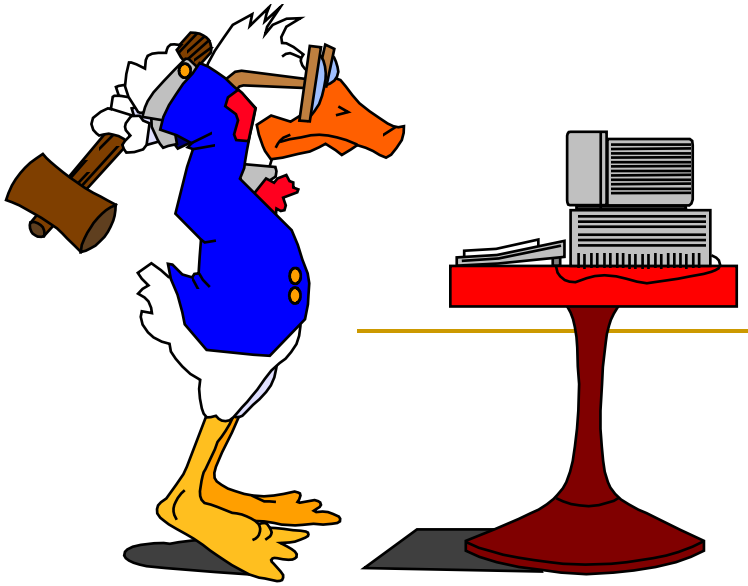
Integration of ICIS with GCP Platform and Progress on the ICIS Web Interface



Richard Bruskiewich,
With: Mylah Anacleto, Rowena ("Weng") Valerio,
Lord Hendrix ("Dags") Barboza, Kevin Manansala

Crop Research Informatics Laboratory

International Rice Research Institute

Plus: Martin Senger, GCP @ European Bioinformatics Institute

Guy Davenport, CRIL-CIMMYT

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Generation

CIMMYT

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Topics

- Generation Challenge Program Platform
- ICIS as GCP Data source
- ICIS Web - The Next Generation
- Towards a Crop Information Network

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CIMMYT

Challenge Programme

"I **challenge** the next **generation** to use new scientific tools and techniques to address the problems that plague the world's poor"

Dr. Norman Borlaug

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Generation

Challenge Programme

Plus some more…

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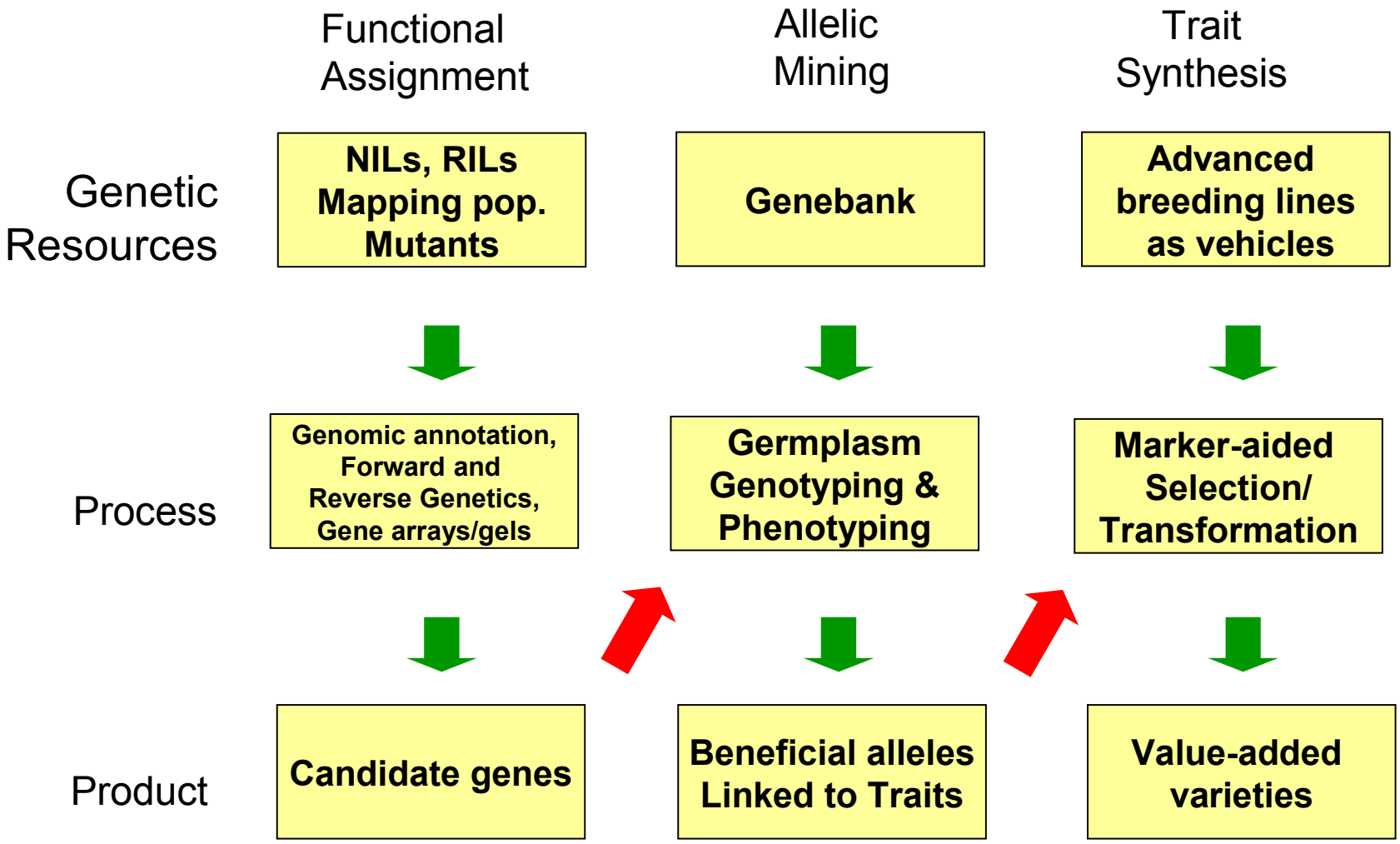
From Gene Discovery to Trait Synthesis



Crop Information Systems: the Next Generation

- Large, globally distributed consortium
- Diverse research requiring a diversity of tools
- Large data sets with diverse data types
- Many legacy informatics systems and tools
- Lack of global data integration standards

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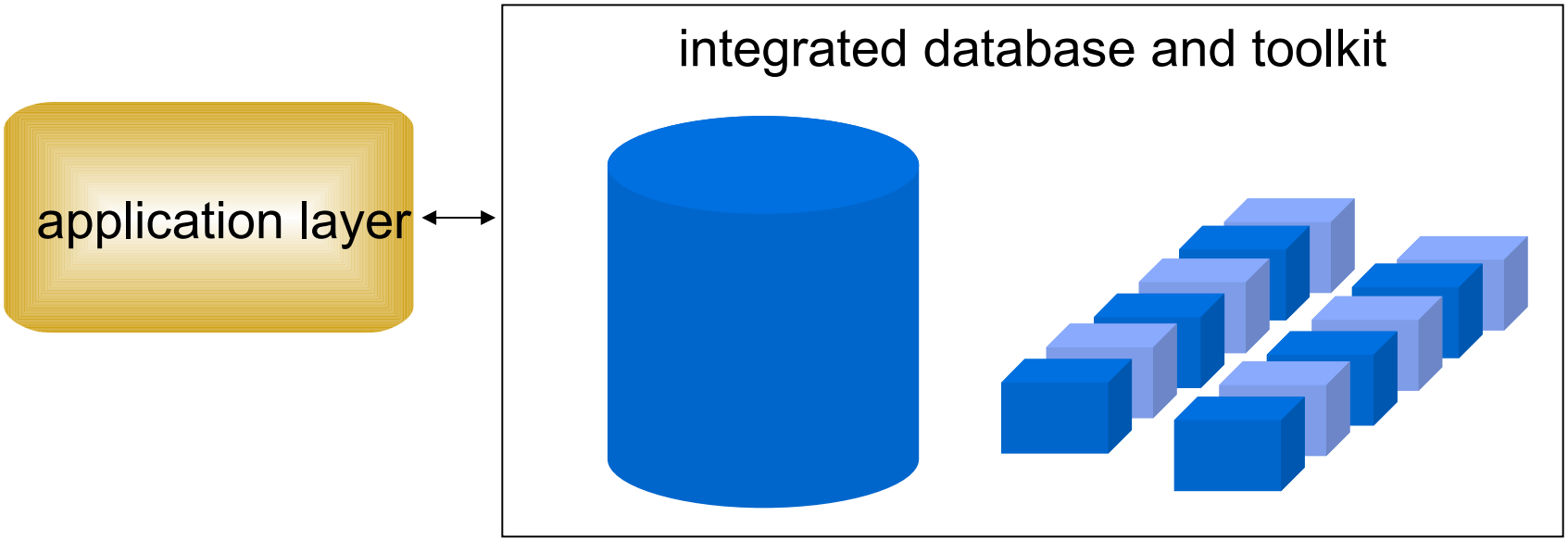
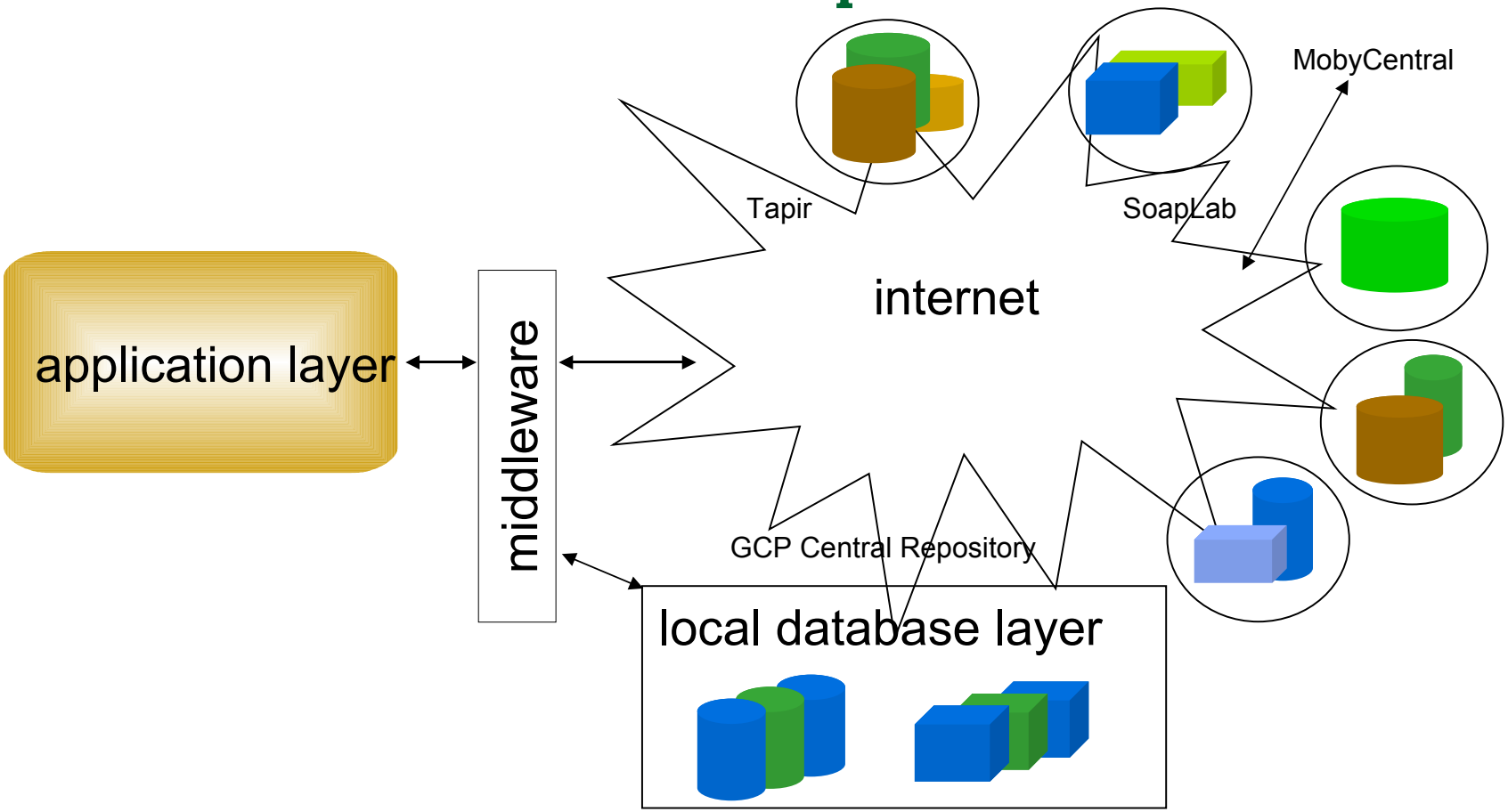
GCP information platform: User Perspective

An environment that provides improved access to data and analysis tools



GCP information platform: Developer's Perspective



The Evolution of SP4...

2004

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The Evolution of SP4...

2005

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The Evolution of SP4...

2006

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The Evolution of SP4...

2007

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The Evolution of SP4...

2008++

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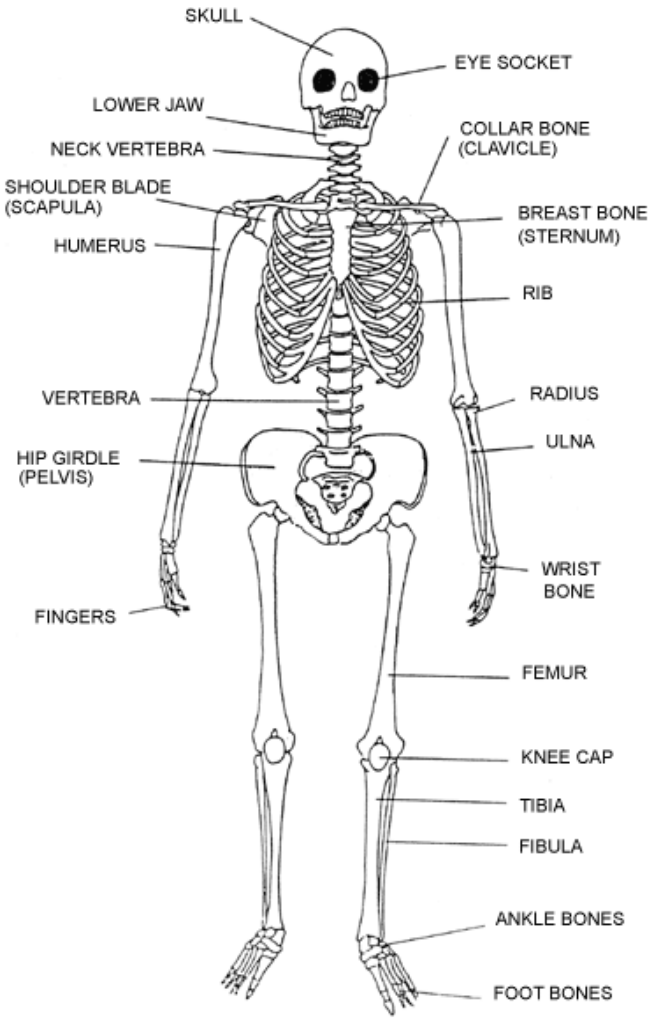
Don't Judge a Product Just by its Cover...

SP4 Standards

First, a solid framework is needed to support the activities of the system.

This framework is essential but invisible during normal usage.

Designing & constructing such a framework takes a bit of time.



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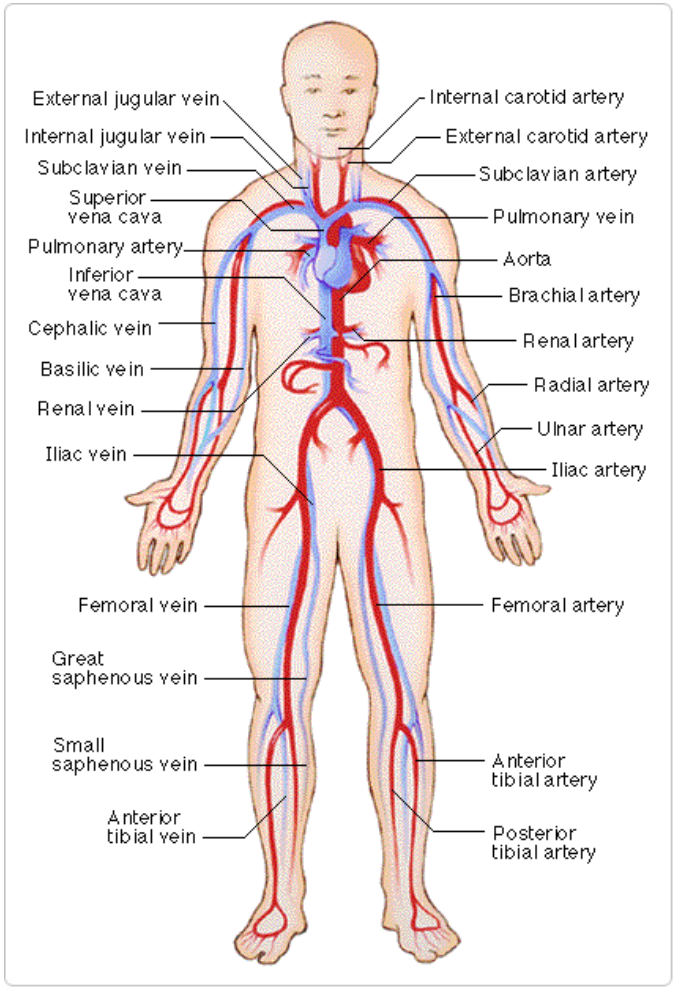
SP4 Network

Second, a comprehensive system to share information and resources is required.

But, again, this system is generally barely visible and taken for granted (except when it is malfunctioning).

Once again, designing & implementing such system for information and resource sharing takes time.



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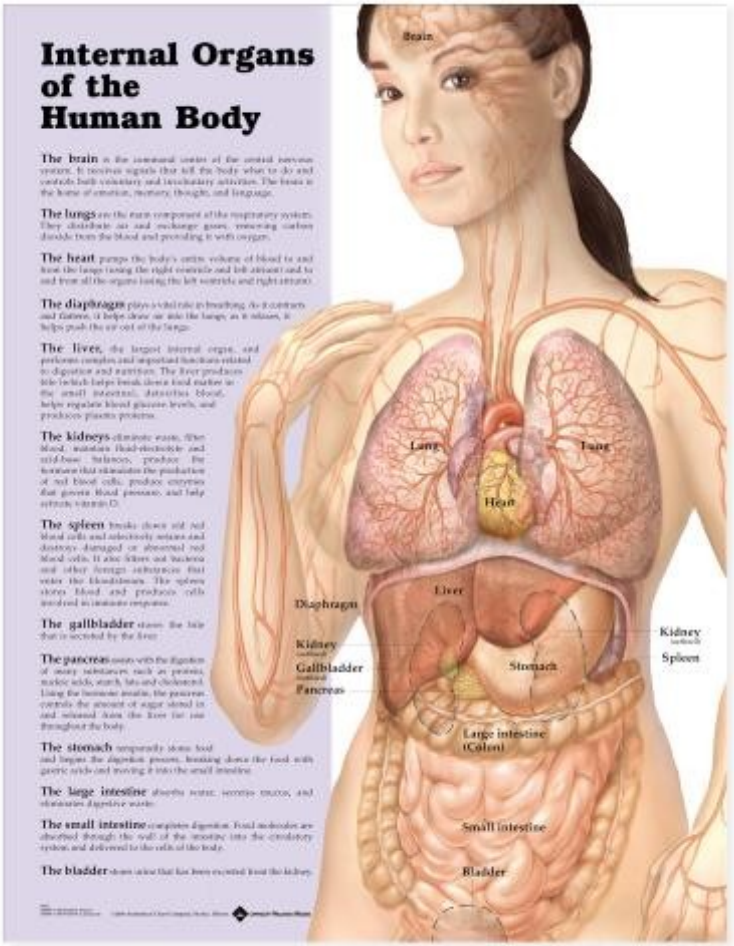
SP4 Platform

Third, specialized functions require specialized tools.

There are many diverse functions that need to collaborate with one another. The inner workings of such tools can be very complex, although their operation needs to be intuitive and simple.

Once again, properly designing/specifying, implementing/adapting then integrating and deploying such tools properly takes time.



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Don't Judge a Product Just by its Cover...

SP4 Packaging & Deployment of Technology

Fourth, the exterior packaging (skin) of the product is very important.

Once again, proper elaboration of this packaging for easy delivery of the system takes time and effort.

But the packaging can be made more beautiful over time.

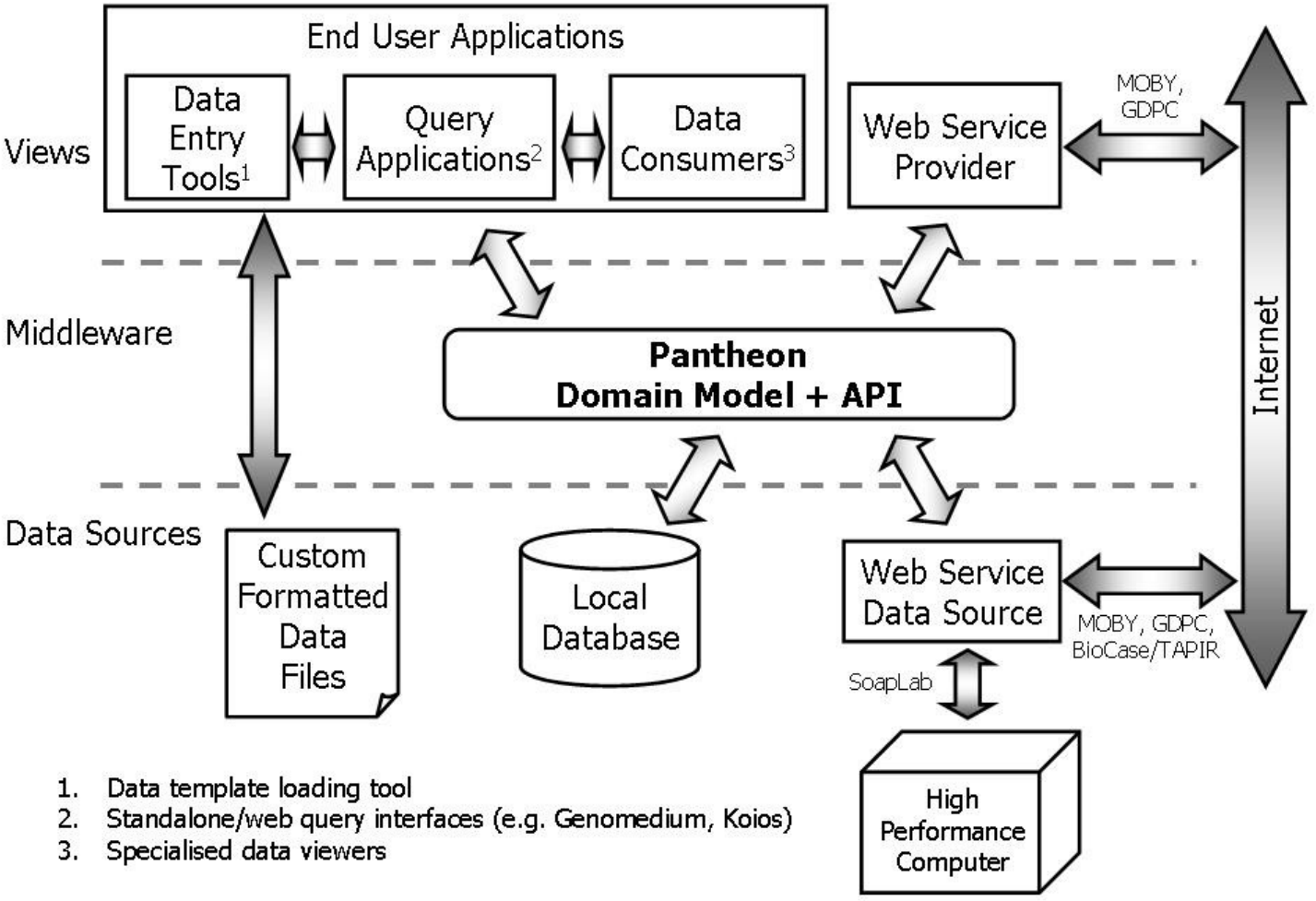
Don’t Judge a Product Just by its Cover…

In the creation of a wonderful product, there is usually a significant process of incubation, birth, evolution and a steep learning curve.

Sometimes, inadvertently, we under-estimate the complexity of the task and the enormity of the challenge.

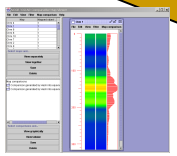
FETAL DEVELOPMENT
From zygote to full term.
For McGraw-Hill Publishing
© Cynthia Turner

Generation CP Platform



http://pantheon.generationcp.org

Bioinformatics Integration across Crop Data



Genetic Analysis

- Inventory
- Identification (passport)
- Genealogy

Genotype

has

Germplasm

has

Phenotype

determines

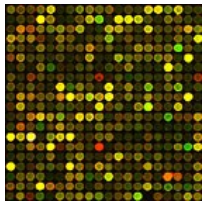
determines

- Genetic Maps
- Physical Maps
- DNA Sequence
- Functional Annotation
- Molecular Variation (Natural or Induced)

Molecular Expression

- Anatomical
- Developmental
- Field Performance
- Stress Response

- Transcripteome
- Proteome
- Metabolome
- Physiology

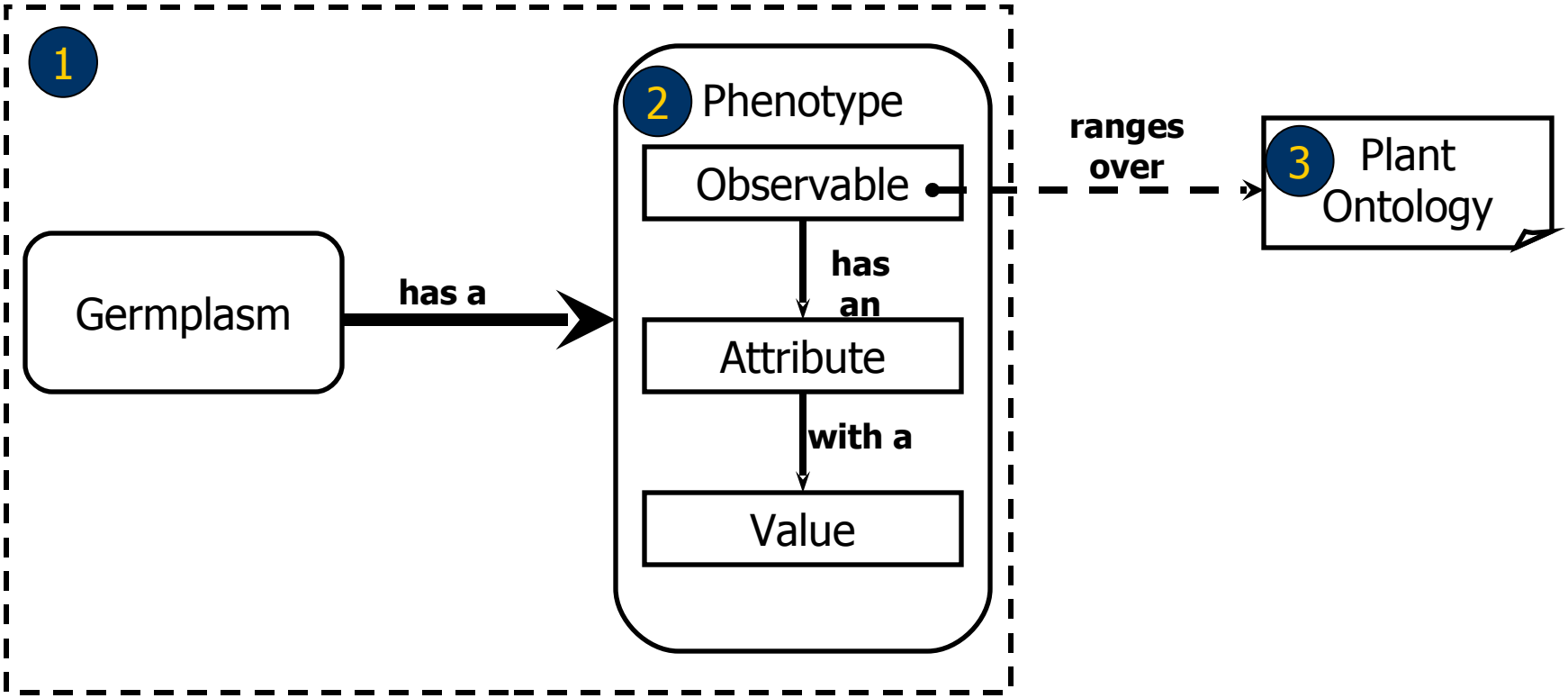


affects

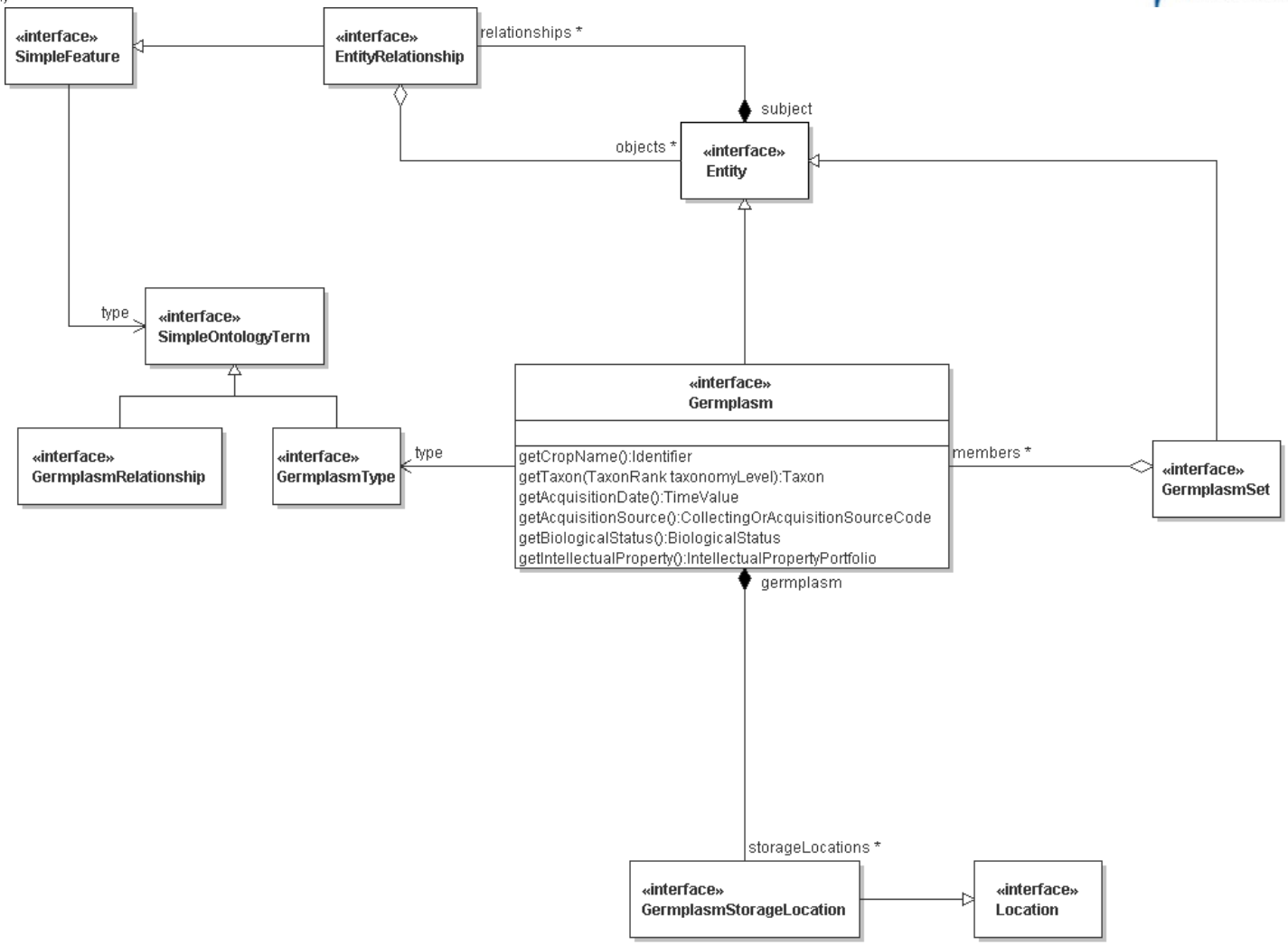
- Location (GIS)
- Climate
- Day Length
- Ecosystem
- Agronomy
- Stresses

Environment

Illustration of the Three Levels of Domain Modeling Semantics



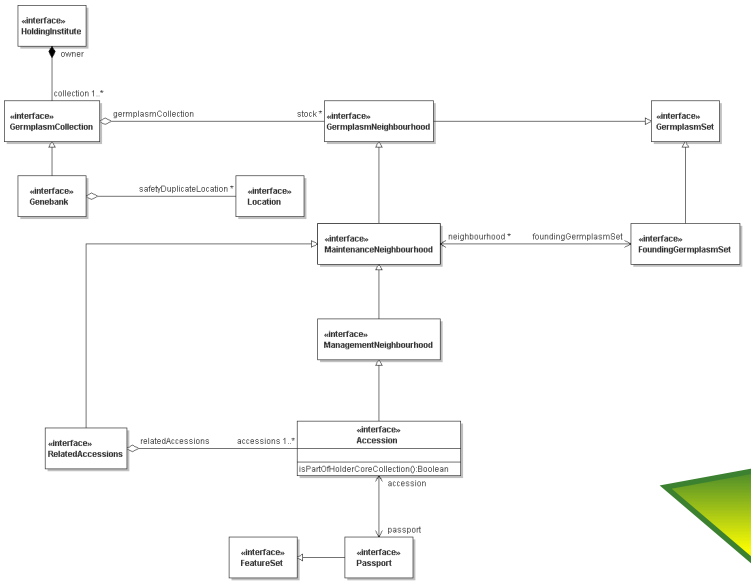
Excerpt of GCP Model (Germplasm)



http://pantheon.generationcp.org/demeter

GCP Domain Model Mappings onto Platform Specific Implementations

GCP Domain Model (UML/EMF)



Semi-Automatic Translation

GCP Platform **Java** Middleware & Applications

GCP Ontology Database

Ontology terms as model parameters

+ global identification of data objects ("LSIDs")
Authority,namespace,objectId, version

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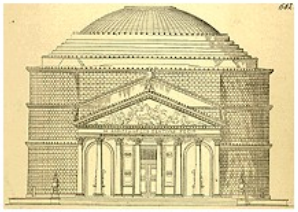
GCP Pantheon



How to correct or update this document

Pantheon
1: a temple dedicated to all the gods
2: a building serving as the burial place of or containing memorials to the famous dead of a nation
3: the gods of a people; especially : the officially recognized gods
4: a group of illustrious persons
[Merriam-Webster Online Dictionary]

The GCP Pantheon is a set of domain models, software tools, end-user's applications and implementations of various data sources. They are all designed in a way that:

- It is possible to add the non-GCP data sources (created by GCP partners, or by third parties) and use them by Pantheon's end-user's applications, and
- It is possible to add the GCP data sources (contained in the Pantheon) to the non-GCP end-user's applications and to view (use, explore) them there.

This documentation shows and explains all parts of Pantheon and presents various tutorials how developers can and should use it. Sometimes it defines mandatory rules, sometimes it only suggests the best practices (recommendations) to follow. Remember:

The less freedom developers have the better interoperability they achieve
[Tulak]

Network Protocols

Platform API:
DataSource
DataConsumer
DataTransformer

Table of Contents

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Current Tool Development/ Integration Activities

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GCP Platform Applications

- **GCP specific query interfaces:**
  - **Genomedium:** standalone workbench
  - **Koios:** web-based workbench
- **Tools/viewers (GCP & 3rd Party):**
  - Data template loading tools
  - High performance computer analyses (via SoapLab)
  - Comparative mapping & trait viewer (for QTL data)
  - GDPC protocol integration for browser, Tassel
  - **Genomic data:** Apollo, MAXD, TMeV, Cytoscape, ATV, Genoma
  - Genomic map query page (web applet)
  - "MolSel"(?)
  - BioMOBY web services

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ICIS as GCP Data source

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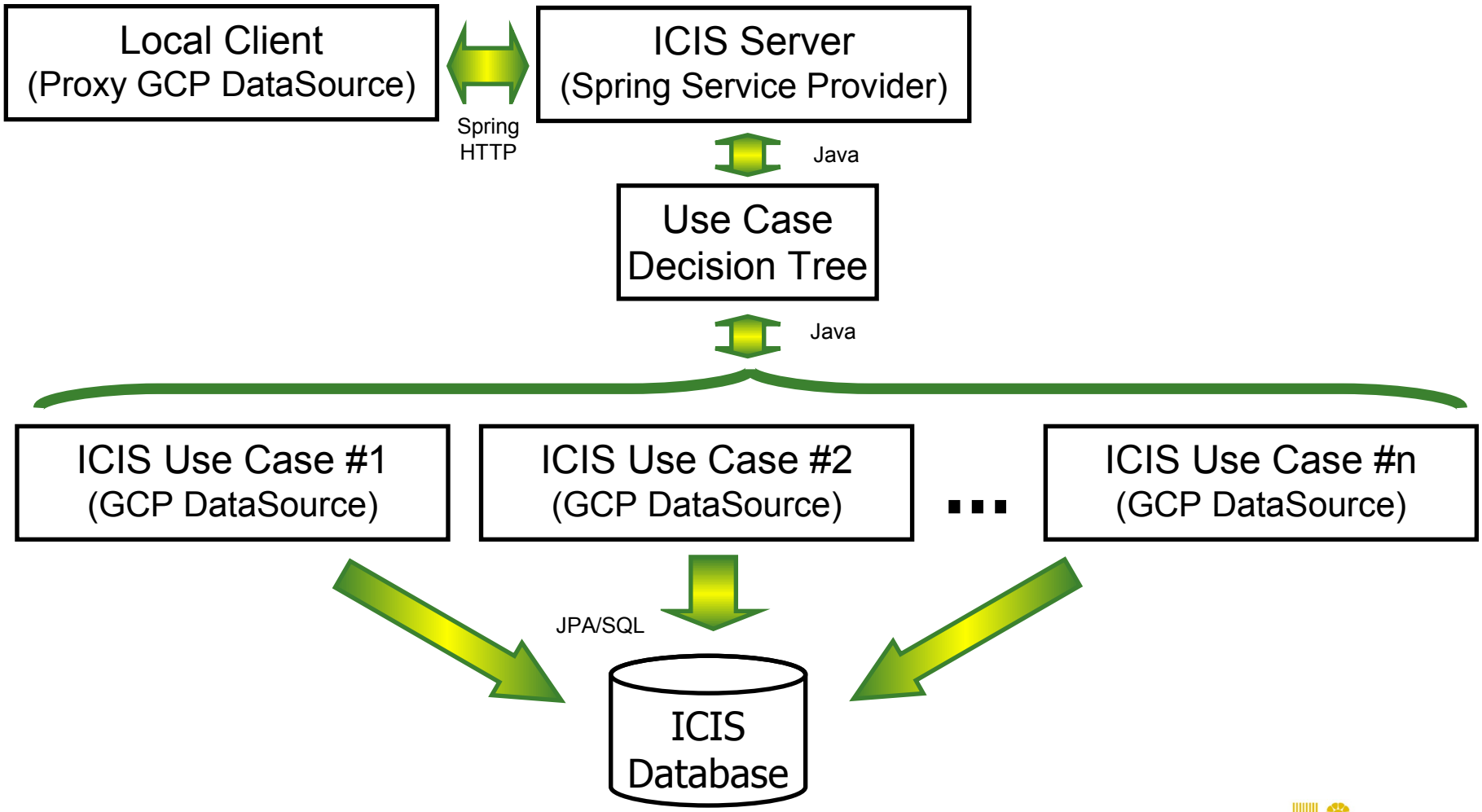
ICIS GCP DataSource
(Proxy + Use Case Delegation Architecture)



GCP DataSource API

- **Primary method:**
  - **Name:** `find`
  - **Parameters:**
    - `String dataTypeIdentifier`
    - `SearchFilter[] filters`
    - `String[] includedAttributesIdentifiers`
    - `Map<String,Object> options`
  - **Returns:** `List<Object>`
- **Secondary methods:** retrieve metadata

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ICIS Web - The Next Generation

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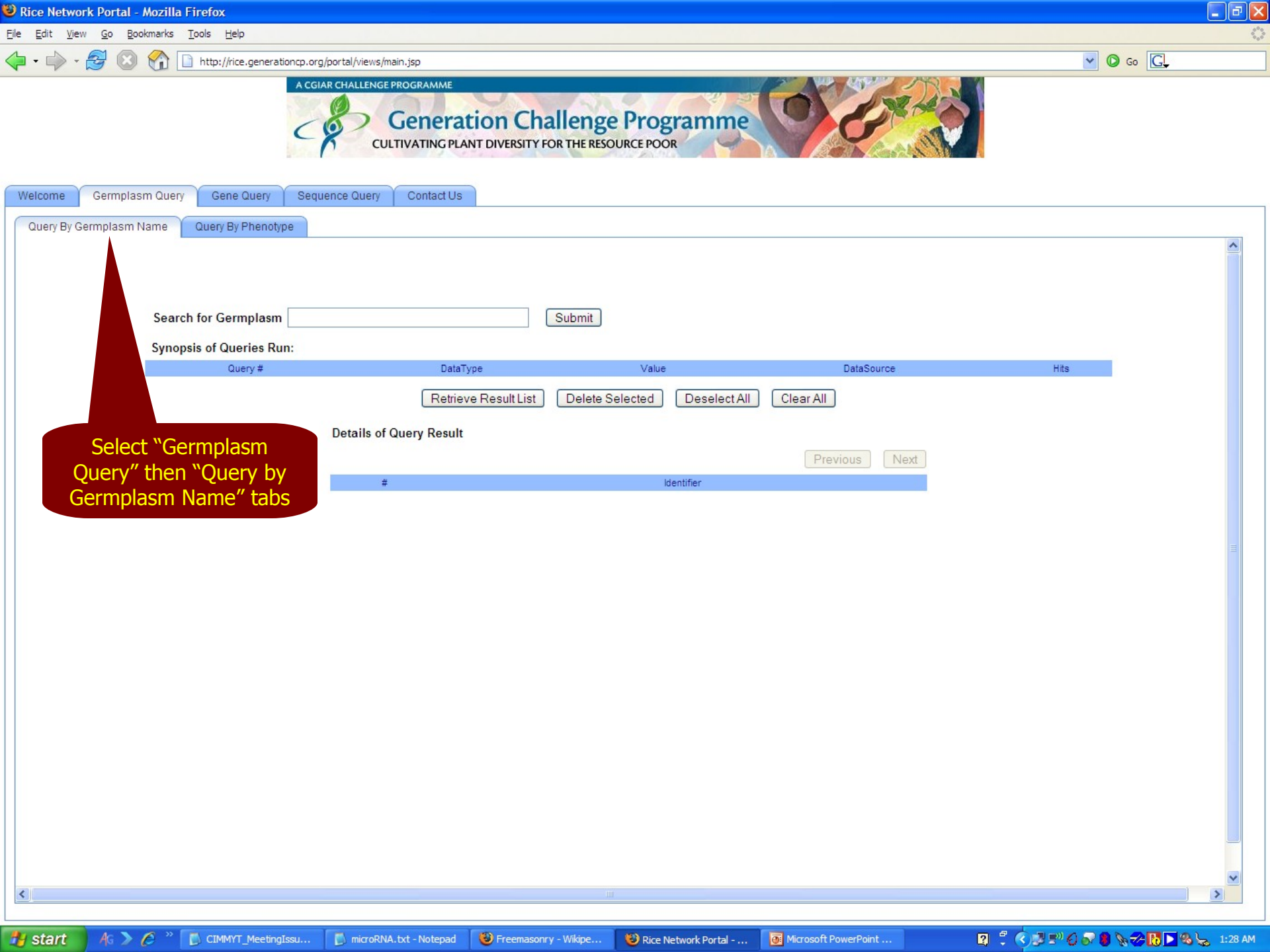
GCP Rice Portal at
http://rice.generationcp.org/portal

The "Rice Network Portal" is a prototype implementation of the Koios GCP domain model driven search engine and GCP MOBY network hub.


Rice Network Portal - Mozilla Firefox
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http://rice.generationcp.org/portal/views/main.jsp
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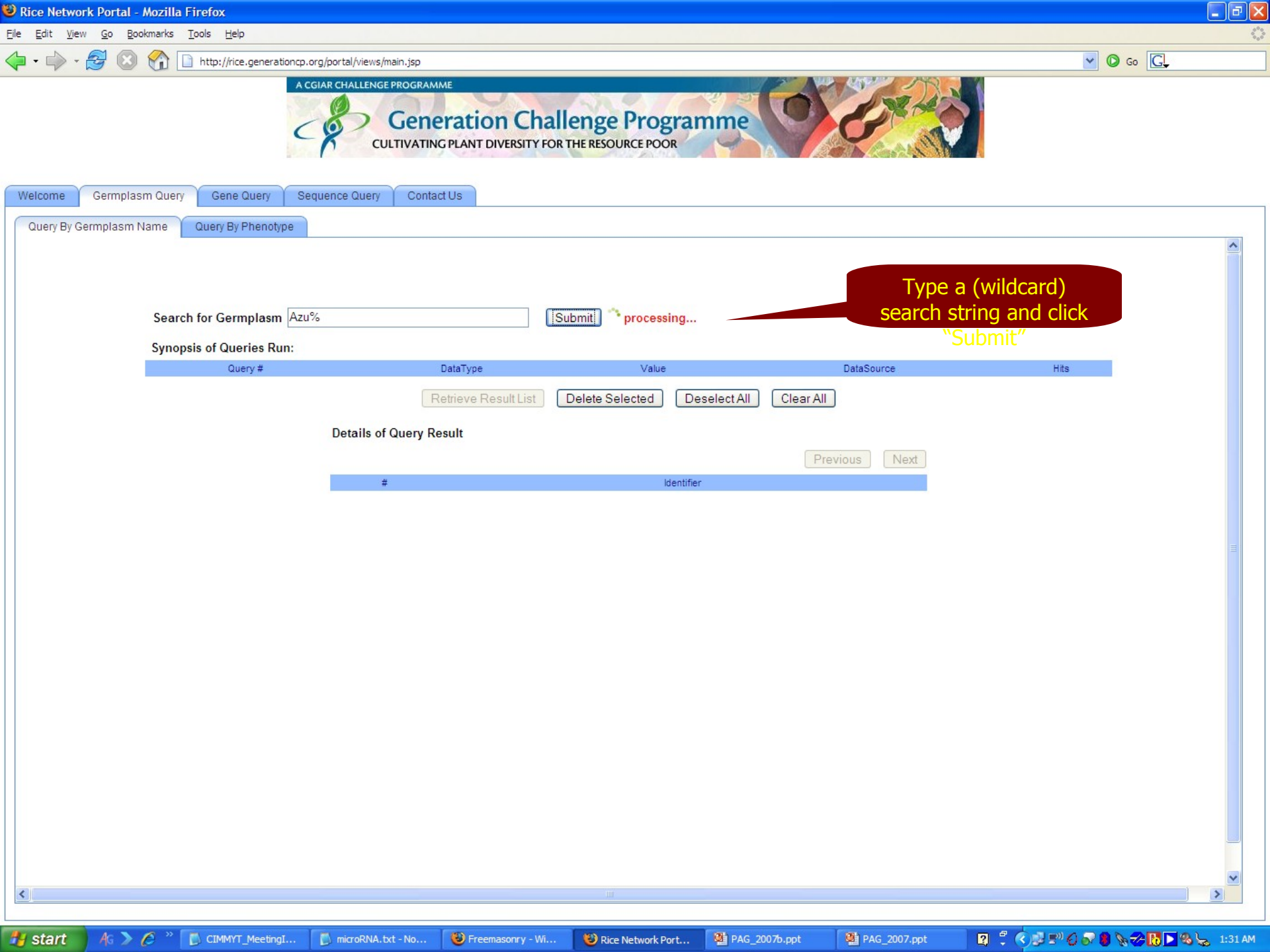
Welcome
Germplasm Query
Gene Query
Sequence Query
Contact Us
Query By Germplasm Name
Query By Phenotype
Search for Germplasm
Submit
Synopsis of Queries Run:
Query #
DataType
Value
DataSource
Hits
Retrieve Result List
Delete Selected
Deselect All
Clear All
Details of Query Result
Previous
Next
#
Identifier
Select "Germplasm Query" then "Query by Germplasm Name" tabs
start
CIMMYT_MeetingIssu...
microRNA.txt - Notepad
Freemasonry - Wikipe...
Rice Network Portal - ...
Microsoft PowerPoint ...
1:28 AM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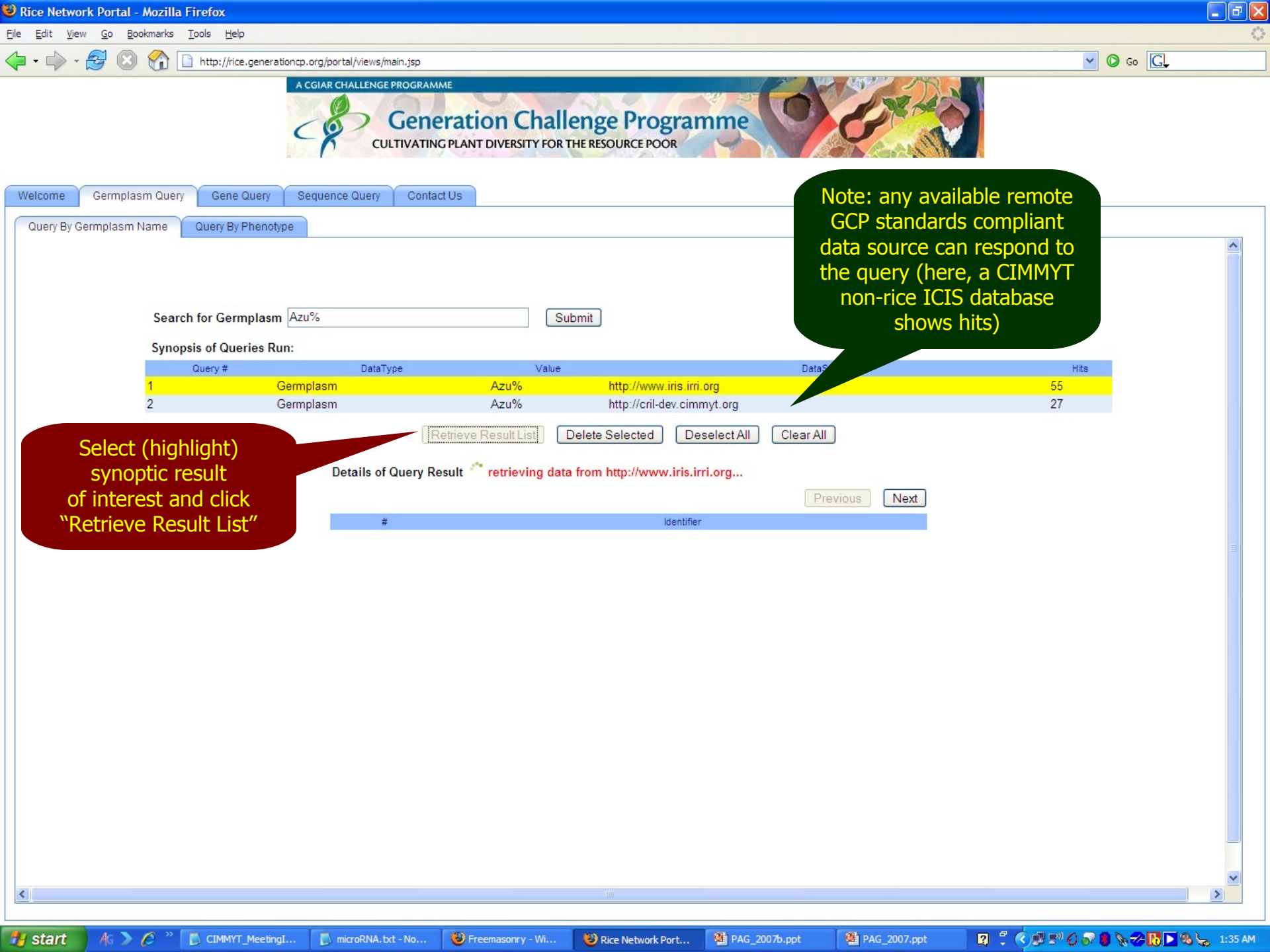
Welcome
Germplasm Query
Gene Query
Sequence Query
Contact Us
Query By Germplasm Name
Query By Phenotype
Search for Germplasm
Azu%
Submit
processing...
Type a (wildcard) search string and click "Submit"
Synopsis of Queries Run:
Query #
DataType
Value
DataSource
Hits
Retrieve Result List
Delete Selected
Deselect All
Clear All
Details of Query Result
Previous
Next
#
Identifier
start
CIMMYT_MeetingI...
microRNA.txt - No...
Freemasonry - Wi...
Rice Network Port...
PAG_2007b.ppt
PAG_2007.ppt
1:31 AM


Rice Network Portal - Mozilla Firefox
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http://rice.generationcp.org/portal/views/main.jsp
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Germplasm Query
Gene Query
Sequence Query
Contact Us
Query By Germplasm Name
Query By Phenotype
Search for Germplasm
Azu%
Submit
Synopsis of Queries Run:
Query #
DataType
Value
Hits
1
Germplasm
Azu%
http://www.iris.irri.org
55
2
Germplasm
Azu%
http://cril-dev.cimmyt.org
27
Retrieve Result List
Delete Selected
Deselect All
Clear All
Details of Query Result
retrieving data from http://www.iris.irri.org...
Previous
Next
#
Identifier
Note: any available remote GCP standards compliant data source can respond to the query (here, a CIMMYT non-rice ICIS database shows hits)
Select (highlight) synoptic result of interest and click "Retrieve Result List"
start
CIMMYT_MeetingI...
microRNA.txt - No...
Freemasonry - Wi...
Rice Network Port...
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1:35 AM

http://www.iris.irri.org - IRIS - Mozilla Firefox

Germplasm Details

Gid: 1210693
Name: AZUCENA
Method: COLLECTED
Date: 01-Aug-1997
Country: PHILIPPINES

Location: PHILIPPINES
Reference: Accessions from Passport1 data
Group: AZUCENA
Source: AZUCENA

Alternative Names:

type	name	location
ACCNO	IRGC 88285	IRRI-INTERNATIONAL RICE RESEARCH INSTITUTE, LOS BANOS
SPNAM	O. SATIVA	PHILIPPINES
COLNO	96-OCM 55	PHILIPPINES

Attributes :

name	description	value	date
COLL	GERMPLASM COLLECTION ATTRIBUTE	IRGC 88285 ;O. SATIVA;;96-OCM 55;;;PHL	2004-11-03
ORI_COUN	Country of Origin	PHL	2004-11-04
COLL_DAT	COLLECTION DATE	19960000	1997-08-01
SPP_CODE	SPECIES CODE	S	1997-08-01

DataSource	Hits
	55
g	27

Clear All

Details of Query Result from http://www.iris.irri.org 1 of 55

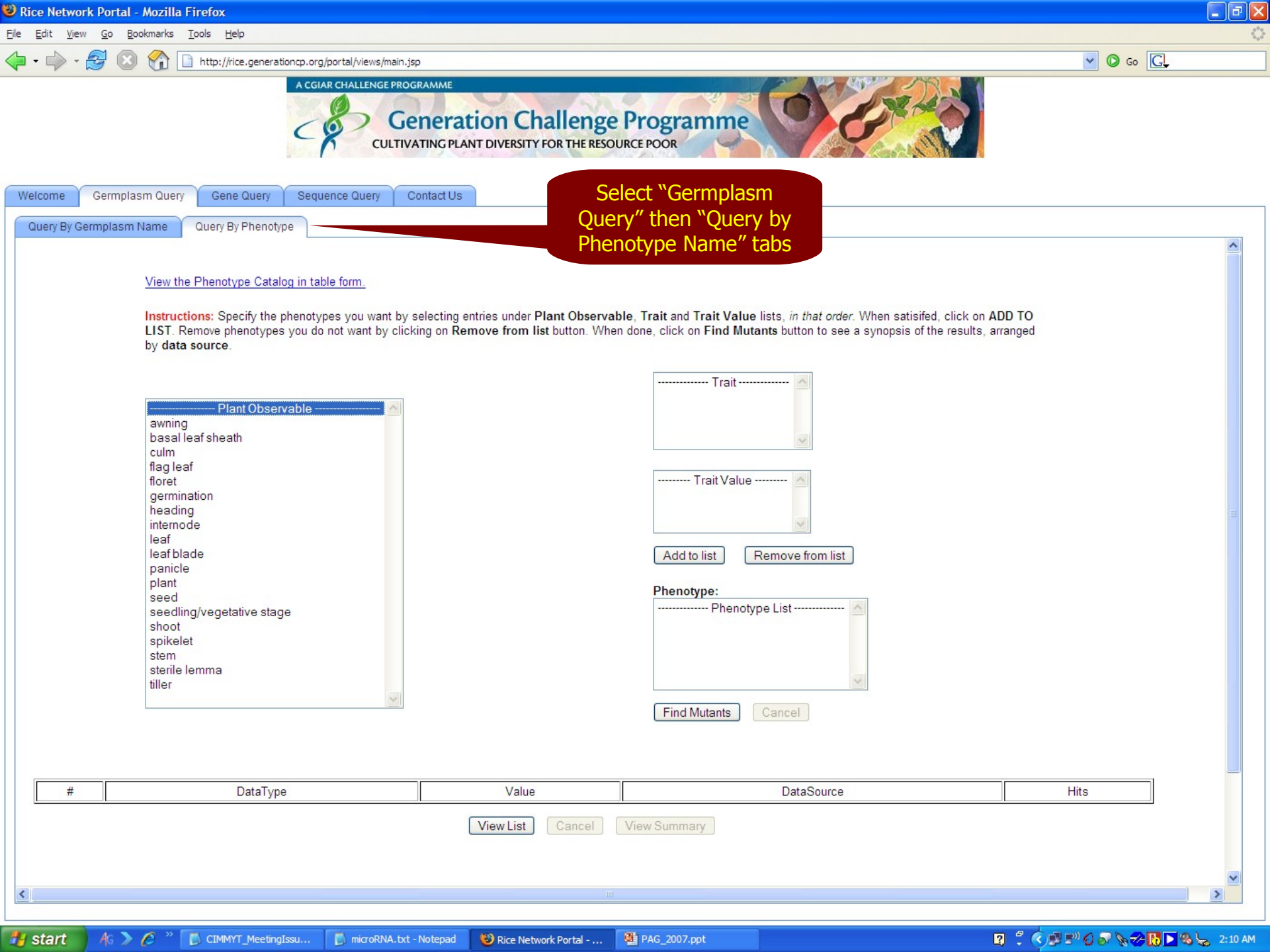
Previous Next

#	Ide
1	AZUCENA
2	AZUCENA
3	AZUCENA
4	AZUCENA
5	AZUCENA
6	AZUCENA
7	AZUCENA
8	AZUCENA
9	AZUCENA
10	AZUCENA
11	AZUCENA
12	AZUCENA
13	AZUCENA
14	AZUCENA
15	AZUCENA
16	AZUCENA
17	AZUANA
18	AZUCENA
19	AZUCENA
20	AZUCENA

Click one of the entries of the result list to go to detailed entry in source web site (or save list on your computer for future reference)

microRNA.txt - Notepad

start CIMMYT_Meet... microRNA.txt ... Freemasonry -... Rice Network ... http://www.iri... PAG_2007b.ppt PAG_2007.ppt 1:41 AM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Query By Germplasm Name
Query By Phenotype
Select "Germplasm Query" then "Query by Phenotype Name" tabs
View the Phenotype Catalog in table form.
Instructions: Specify the phenotypes you want by selecting entries under Plant Observable, Trait and Trait Value lists, in that order. When satisifed, click on ADD TO LIST. Remove phenotypes you do not want by clicking on Remove from list button. When done, click on Find Mutants button to see a synopsis of the results, arranged by data source.
---------- Plant Observable ----------
awning
basal leaf sheath
culm
flag leaf
floret
germination
heading
internode
leaf
leaf blade
panicle
plant
seed
seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller
---------- Trait ----------
-------- Trait Value --------
Add to list
Remove from list
Phenotype:
---------- Phenotype List ----------
Find Mutants
Cancel
DataType Value DataSource Hits
View List
Cancel
View Summary
start
CIMMYT_MeetingIssu...
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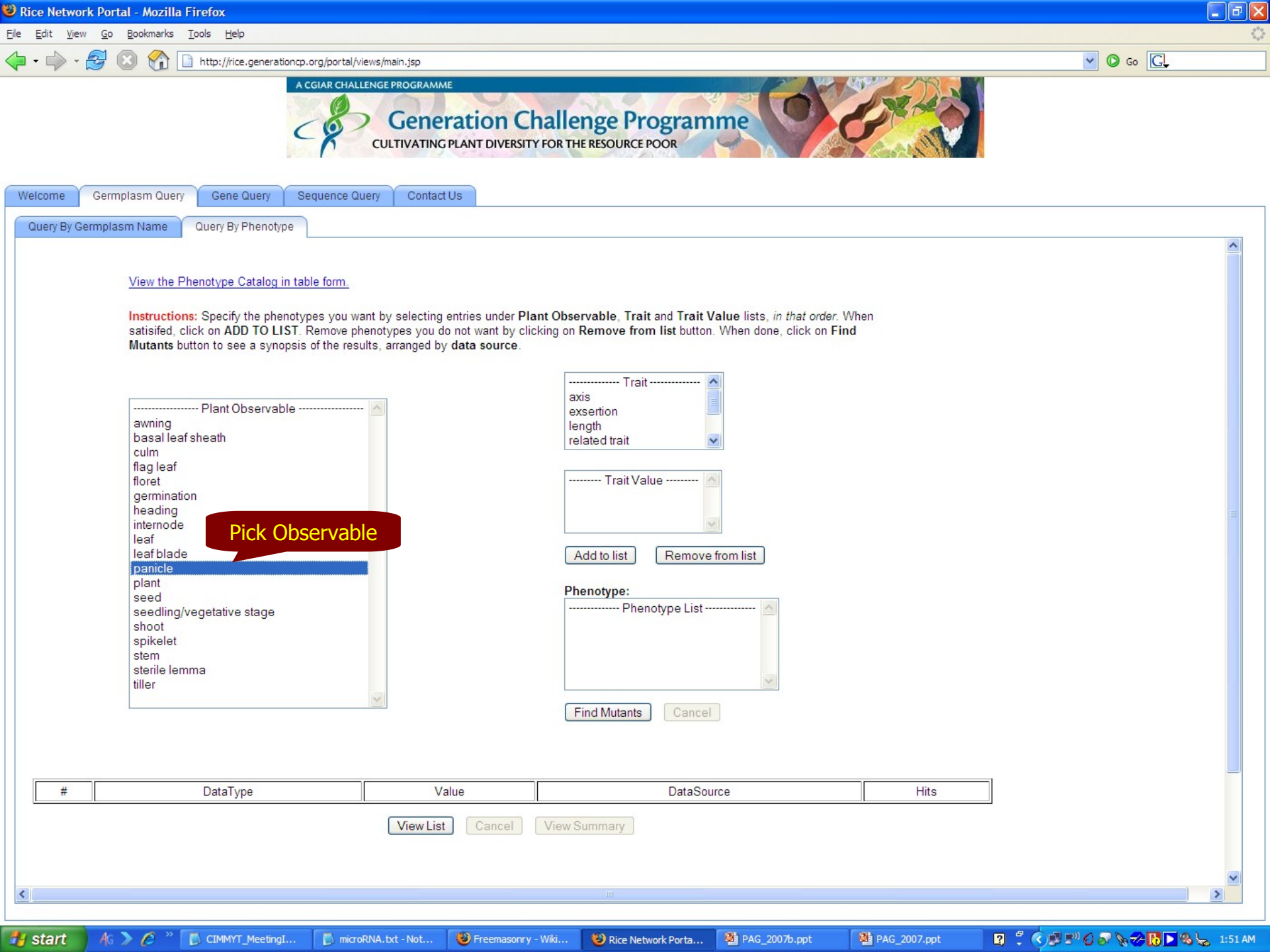
PAG_2007.ppt
2:10 AM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seed
seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller
Pick Observable
---------- Trait ----------
axis
exsertion
length
related trait
-------- Trait Value --------
Add to list
Remove from list
Phenotype:
---------- Phenotype List ----------
Find Mutants
Cancel
#
DataType
Value
DataSource
Hits
View List
Cancel
View Summary
start
CIMMYT_MeetingI...
microRNA.txt - Not...
Freemasonry - Wiki...
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Rice Network Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://rice.generationcp.org/portal/views/main.jsp

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Query By Germplasm Name | Query By Phenotype

View the Phenotype Catalog in table form.

Instructions: Specify the phenotypes you want by selecting entries under **Plant Observable**, **Trait** and **Trait Value** lists, *in that order*. When satisifed, click on **ADD TO LIST**. Remove phenotypes you do not want by clicking on **Remove from list** button. When done, click on **Find Mutants** button to see a synopsis of the results, arranged by **data source**.

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leaf
leaf blade
panicle
plant
seed
seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

Pick Trait Attribute

-------- Trait Value --------
partly exserted

Add to list | Remove from list

Phenotype:

---------- Phenotype List ----------

Find Mutants | Cancel

#	DataType	Value	DataSource	Hits

View List | Cancel | View Summary

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:12 AM

Rice Network Portal - Mozilla Firefox

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seedling/vegetative stage
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spikelet
stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

Pick Trait Value

-------- Trait Value --------
partly exserted

Add to list | Remove from list

Phenotype:

---------- Phenotype List ----------

Find Mutants | Cancel

#	DataType	Value	DataSource	Hits

View List | Cancel | View Summary

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:14 AM

Rice Network Portal - Mozilla Firefox

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CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR

Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Query By Germplasm Name | Query By Phenotype

View the Phenotype Catalog in table form.

Instructions: Specify the phenotypes you want by selecting entries under **Plant Observable**, **Trait** and **Trait Value** lists, *in that order*. When satisifed, click on **ADD TO LIST**. Remove phenotypes you do not want by clicking on **Remove from list** button. When done, click on **Find Mutants** button to see a synopsis of the results, arranged by **data source**.

---------- Plant Observable ----------
awning
basal leaf sheath
culm
flag leaf
floret
germination
heading
internode
leaf
leaf blade
panicle
plant
seed
seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

--------- Trait Value ---------
partly exserted

Add to list | Remove from list

Add Phenotype to List

Phenotype:

---------- Phenotype List ----------
exsertion of panicle is partly exserted

Find Mutants | Cancel

#	DataType	Value	DataSource	Hits

View List | Cancel | View Summary

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:15 AM

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

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stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

-------- Trait Value --------
partly exserted

Add to list | Remove from list

Phenotype:

---------- Phenotype List ----------
exsertion of panicle is partly exserted

Click "Find Mutants"

Find Mutants | Cancel

processing...

#	DataType	Value	DataSource	Hits

View List | Cancel | View Summary

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:17 AM

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Query By Germplasm Name | Query By Phenotype

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leaf blade
panicle
plant
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seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

--------- Trait Value ---------
partly exserted

Add to list | Remove from list

Phenotype:

---------- Phenotype List ----------
exsertion of panicle is partly exserted

Find Mutants | Cancel

Result Synopsis

!	DataType	Value	Datasource	Hits
☐	Germplasm	exsertion of panicle is partly exserted	IRRI Central via MOBY Web Service	11

View List | Cancel | View Summary

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:18 AM

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Generation Challenge Programme

CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR

Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Query By Germplasm Name | Query By Phenotype

View the Phenotype Catalog in table form.

Instructions: Specify the phenotypes you want by selecting entries under **Plant Observable**, **Trait** and **Trait Value** lists, *in that order*. When satisifed, click on **ADD TO LIST**. Remove phenotypes you do not want by clicking on **Remove from list** button. When done, click on **Find Mutants** button to see a synopsis of the results, arranged by **data source**.

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panicle
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seedling/vegetative stage
shoot
spikelet
stem
sterile lemma
tiller

---------- Trait ----------
axis
exsertion
length
related trait

--------- Trait Value ---------
partly exserted

Add to list | Remove from list

Phenotype:

---------- Phenotype List ----------
exsertion of panicle is partly exserted

Find Mutants | Cancel

Click check box of synopsis row and click "View List"

!	DataType	lue	Datasource	Hits
☑	Germplasm	exsertion of panicle is partly exsert	IRRI Central via MOBY Web Service	11

View List | Cancel | View Summary

processing...

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:20 AM

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Generation Challenge Programme

CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR

Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Query By Germplasm Name | Query By Phenotype

shoot
spikelet
stem
sterile lemma
tiller

exsertion of panicle is partly exserted

Find Mutants Cancel

!	DataType	Value	Datasource	Hits
☑	Germplasm	exsertion of panicle is partly exserted	IRRI Central via MOBY Web Service	11

View List Cancel View Summary

List of Results provided (may need to scroll down the window)

Details of Query Result:

#	Mutant Id
1	IR 64 E 17466-1-3
2	IR 64 E 17466-1-6
3	IR 64 E 17466-1-4
4	IR 64 E 17466-1-2
5	IR 64 E 17466-1-8
6	IR 64 E 17466-1-10
7	IR 64 E 17466-1-5
8	IR 64 E 17466-1-7
9	IR 64 E 17466-1-1
10	IR 64 F 2115-2-2
11	IR 64 E 17466-1-9

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | Rice Network Portal - ... | PAG_2007.ppt | 2:21 AM

http://www.iris.irri.org - IRIS - Mozilla Firefox

Mutant: IR 64 E 17466-1-3

Rice Mutant Ontology Id	Observable	Attribute	Value
IRFGC:0063	Plant	height	semidwarf
IRFGC:0056	Panicle	exsertion	partly exserted
IRFGC:0014	Culm	senescence	premature

partly exserted

ncel

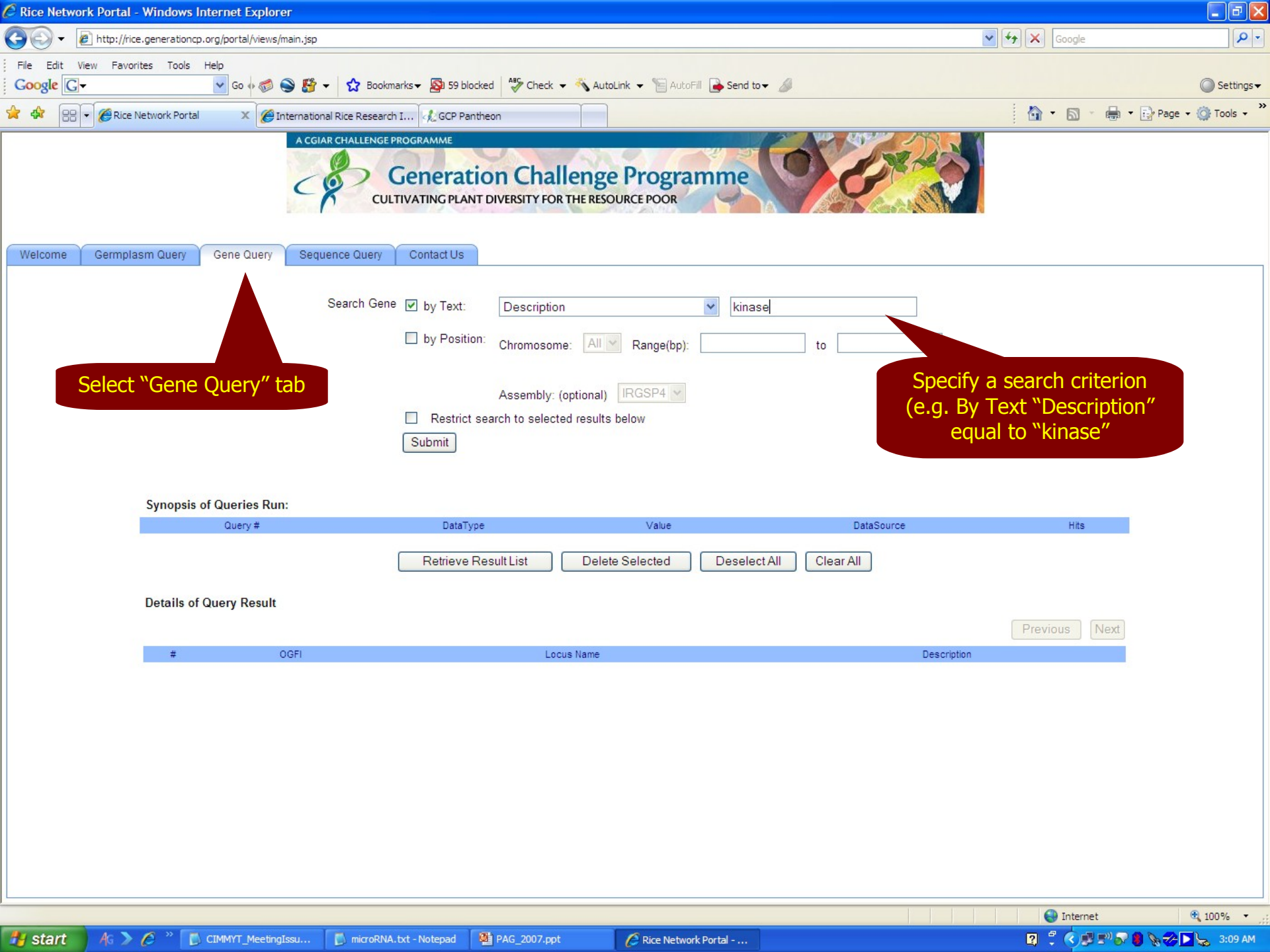
Datasource	Hits
BY Web Service	11

View List | Cancel | View Summary

Details of Query Result:

#	Mutant Id
1	IR 64 E 17466-1-3
2	IR 64 E 17466-1-6
3	IR 64 E 17466-1-4
4	IR 64 E 17466-1-2
5	IR 64 E 17466-1-8
6	IR 64 E 17466-1-10
7	IR 64 E 17466-1-5
8	IR 64 E 17466-1-7
9	IR 64 E 17466-1-1
10	IR 64 F 2115-2-2
11	IR 64 E 17466-1-9

Click one of the entries of the result list to go to detailed entry in source web site


Rice Network Portal - Windows Internet Explorer
http://rice.generationcp.org/portal/views/main.jsp
Rice Network Portal
International Rice Research I...
GCP Pantheon
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CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR
Welcome
Germplasm Query
Gene Query
Sequence Query
Contact Us
Search Gene
by Text:
Description
kinase
by Position:
Chromosome:
All
Range(bp):
to
Assembly: (optional)
IRGSP4
Restrict search to selected results below
Submit
Select "Gene Query" tab
Specify a search criterion (e.g. By Text "Description" equal to "kinase"
Synopsis of Queries Run:
Query #
DataType
Value
DataSource
Hits
Retrieve Result List
Delete Selected
Deselect All
Clear All
Details of Query Result
Previous
Next
#
OGFI
Locus Name
Description
Internet
100%
start
CIMMYT_MeetingIssu...
microRNA.txt - Notepad
PAG_2007.ppt
Rice Network Portal - ...
3:09 AM

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Page Tools

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Search Gene ☑ by Text: Description kinase

☐ by Position: Chromosome: All Range(bp): to

Assembly: (optional) IRGSP4

Click Submit

☐ Restrict search to selected results below

Submit processing...

Synopsis of Queries Run:

Query #	DataType	Value	DataSource	Hits

Retrieve Result List | Delete Selected | Deselect All | Clear All

Details of Query Result

Previous Next

#	OGFI	Locus Name	Description

Done

Internet 100%

start CIMMYT_MeetingIssu... microRNA.txt - Notepad PAG_2007.ppt Rice Network Portal - ... 3:20 AM

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Search Gene ☑ by Text: Description kinase

☐ by Position: Chromosome: All Range(bp): to

Assembly: (optional) IRGSP4

☐ Restrict search to selected results below

Submit

Synopsis of results

Synopsis of Queries Run:

Query #	DataType	Value	DataSource	Hits
1	GeneProduct	kinase	Chado Datasource	1173

Retrieve Result List | Delete Selected | Deselect All | Clear All

Details of Query Result

Previous Next

#	OGFI	Locus Name	Description

Done

Internet 100%

start | CIMMYT_MeetingIssu... | microRNA.txt - Notepad | PAG_2007.ppt | Rice Network Portal - ... | 3:27 AM

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Rice Network Portal

Page Tools

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Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Cut and paste in plain or FASTA formatted sequence into the box below...

...or upload a sequence from a file

Filename: Browse...

Run Select BLAST program from Select database

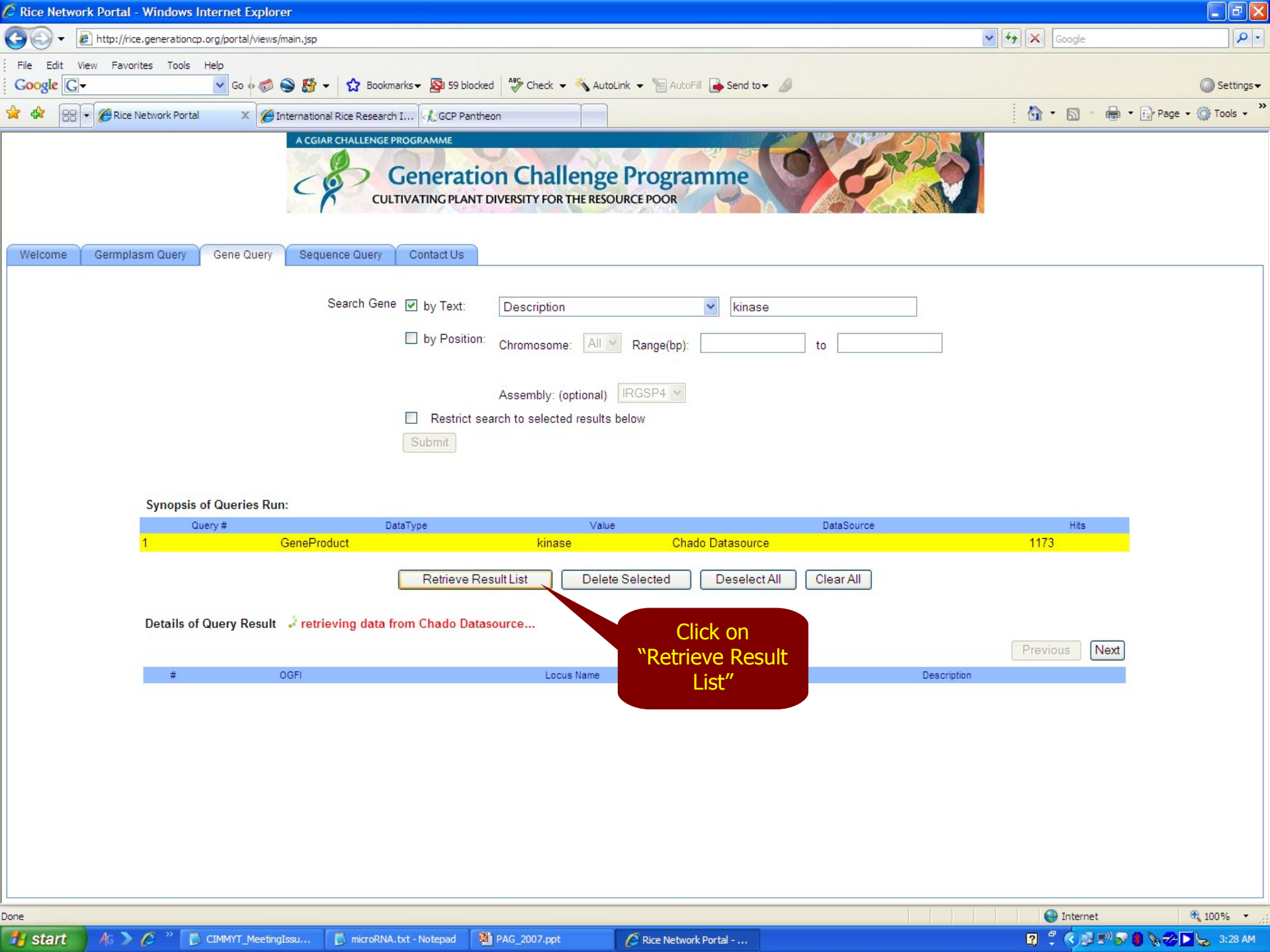
submit

RESULTS:

Click here to begin

Internet 100%

start Microsoft Offic... SP2_2007_Us... Inbox - Micros... ___PAG_2007... Microsoft Pow... Main Page - Cr... Rice Network ... 10:22 PM


Rice Network Portal - Windows Internet Explorer
http://rice.generationcp.org/portal/views/main.jsp
Rice Network Portal
International Rice Research I...
GCP Pantheon
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Generation Challenge Programme
CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR
Welcome
Germplasm Query
Gene Query
Sequence Query
Contact Us
Search Gene
by Text:
Description
kinase
by Position:
Chromosome:
All
Range(bp):
to
Assembly: (optional)
IRGSP4
Restrict search to selected results below
Submit
Synopsis of Queries Run:
Query #
DataType
Value
DataSource
Hits
1
GeneProduct
kinase
Chado Datasource
1173
Retrieve Result List
Delete Selected
Deselect All
Clear All
Details of Query Result
retrieving data from Chado Datasource...
Previous
Next
#
OGFI
Locus Name
Description
Click on "Retrieve Result List"
Done
Internet
100%
start
CIMMYT_MeetingIssu...
microRNA.txt - Notepad
PAG_2007.ppt
Rice Network Portal - ...
3:28 AM

Rice Network Portal - Windows Internet Explorer

http://rice.generationcp.org/portal/views/main.jsp

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CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR

Welcome | Germplasm Query | Gene Query | Sequence Query | Contact Us

Submit

Synopsis of Queries Run:

Query #	DataType	Value	DataSource	Hits
1	GeneProduct	kinase	Chado Datasource	1173

Retrieve Result List | Delete Selected | Deselect All | Clear All

Details of Query Result from Chado Datasource **1 - 20 of 1173**

Previous | Next

#	OGFI	Locus Name	Description
1	OGFI.1210320.00000211	chr01: 2013790 - 2017248	Similar to Receptor protein kinase-like protein. Category: II
2	OGFI.1210320.00000092	chr01: 744451 - 747945	Protein kinase-like domain containing protein. Category: III
3	OGFI.1210320.00000102	chr01: 861578 - 864249	Protein kinase domain containing protein. Category: III
4	OGFI.1210320.00000096	chr01: 769331 - 772849	Protein kinase-like domain containing protein. Category: III
5	OGFI.1210320.00000016	chr01: 144589 - 146852	Shikimate kinase domain containing protein. Category: III
6	OGFI.1210320.00000106	chr01: 920077 - 922630	Protein kinase-like domain containing protein. Category: III
7	OGFI.1210320.00000203	chr01: 1956776 - 1966451	Protein kinase-like domain containing protein. Category: III
8	OGFI.1210320.00000207	chr01: 1976372 - 1986115	Protein kinase-like domain containing protein. Category: III
9	OGFI.1210320.00000093	chr01: 751079 - 753992	Protein kinase domain containing protein. Category: III
10	OGFI.1210320.00000217	chr01: 2052582 - 2056636	Protein kinase-like domain containing protein. Category: III
11	OGFI.1210320.00000210	chr01: 2001157 - 2002305	Protein kinase domain containing protein. Category: III
12	OGFI.1210320.00000216	chr01: 2047716 - 2051514	Protein kinase-like domain containing protein. Category: III
13	OGFI.1210320.00000110	chr01: 993709 - 996262	Protein kinase-like domain containing protein. Category: III
14	OGFI.1210320.00000067	chr01: 553024 - 557015	Protein kinase-like domain containing protein. Category: III
15	OGFI.1210320.00000089	chr01: 733070 - 736556	Protein kinase-like domain containing protein. Category: III
16	OGFI.1210320.00000104	chr01: 910734 - 913246	Protein kinase-like domain containing protein. Category: III
17	OGFI.1210320.00000283	chr01: 2809312 - 2814017	Protein kinase-like domain containing protein. Category: III
18	OGFI.1210320.00000286	chr01: 2838933 - 2842512	Protein kinase-like domain containing protein. Category: III
19	OGFI.1210320.00000159	chr01: 1517246 - 1520601	Similar to Receptor-like protein kinase. Category: II
20	OGFI.1210320.00000094	chr01: 766168 - 768681	Similar to Protein kinase RLK17. Category: II

Table of Results Provided (click next to see more values)

Done

Internet 100%

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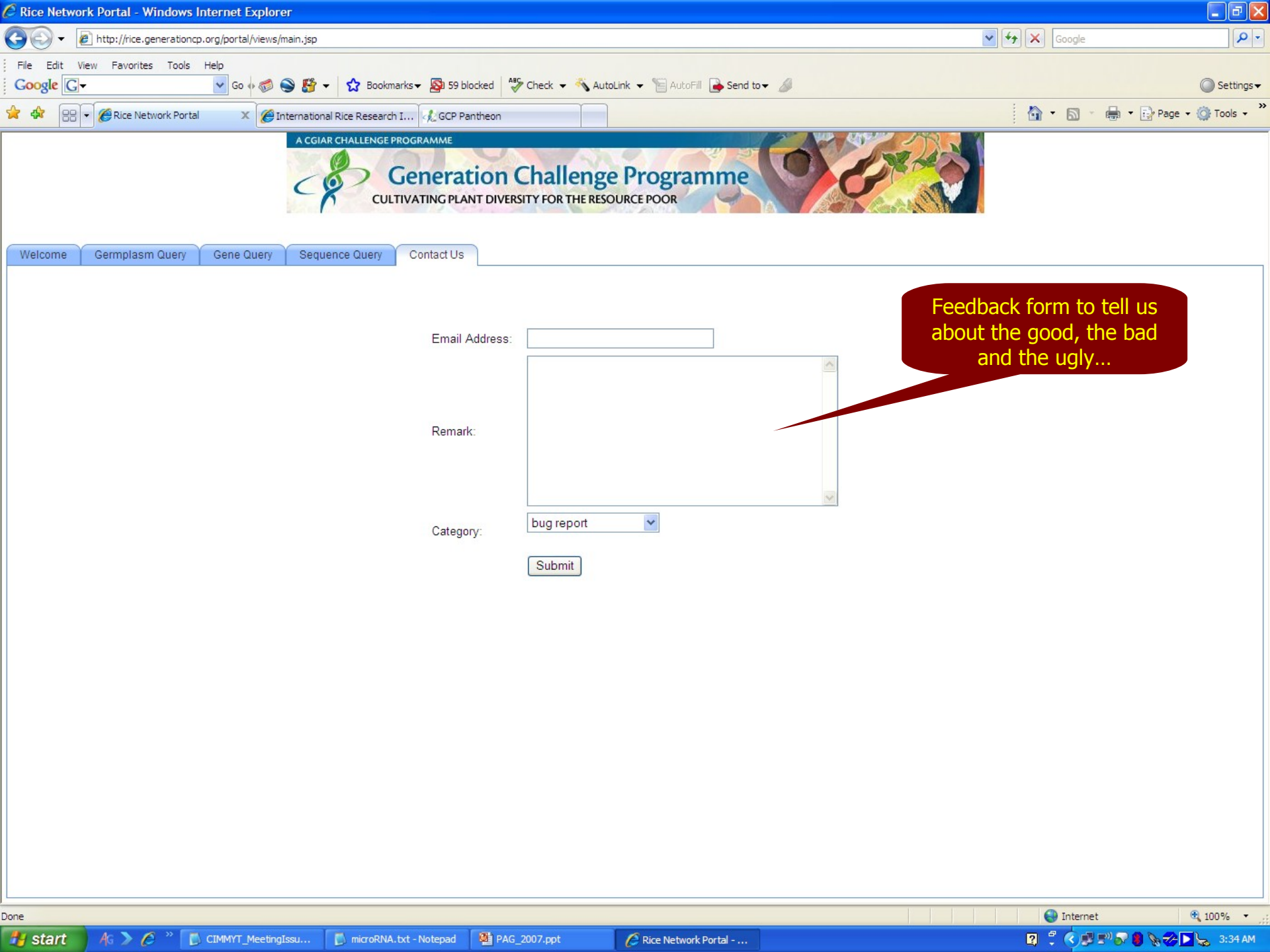
Rice Network Portal - Windows Internet Explorer
http://rice.generationcp.org/portal/views/main.jsp
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Rice Network Portal
International Rice Research I...
GCP Pantheon
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Generation Challenge Programme
CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR
Welcome
Germplasm Query
Gene Query
Sequence Query
Contact Us
Email Address:
Remark:
Category:
bug report
Submit
Feedback form to tell us about the good, the bad and the ugly…
Done
Internet
100%
start
CIMMYT_MeetingIssu...
microRNA.txt - Notepad
PAG_2007.ppt
Rice Network Portal - ...
3:34 AM

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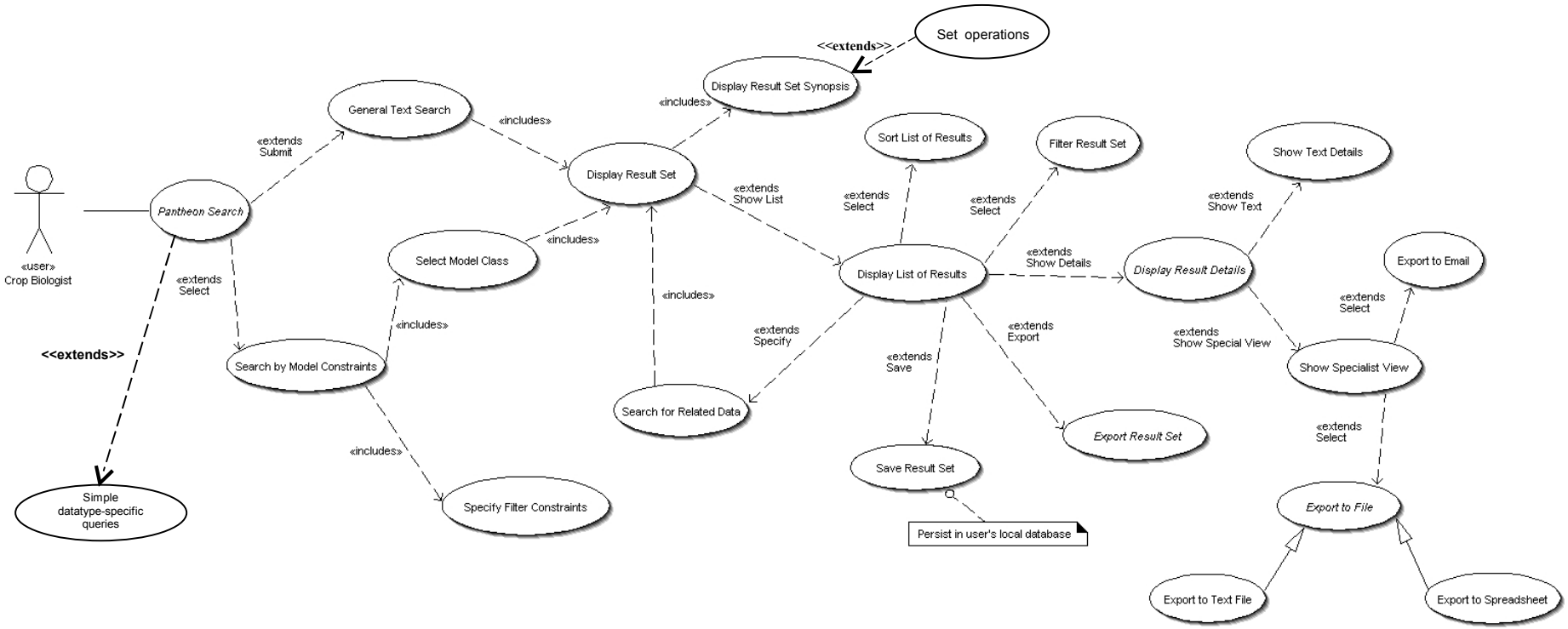

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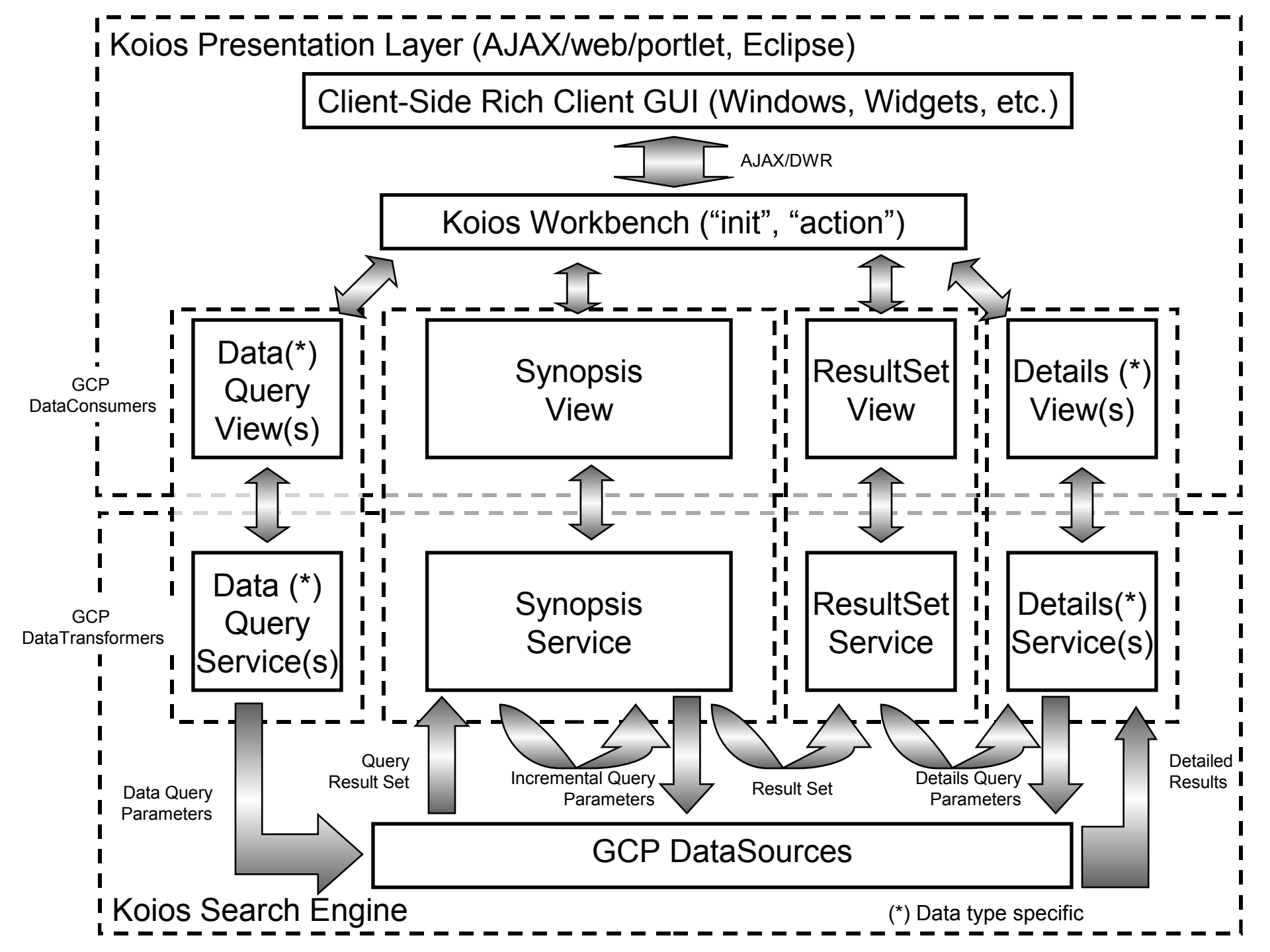
Koios Presentation Layer (AJAX/web/portlet, Eclipse)
Client-Side Rich Client GUI (Windows, Widgets, etc.)
AJAX/DWR
Koios Workbench (“init”, “action”)
GCP DataConsumers
Data(*) Query View(s)
Synopsis View
ResultSet View
Details (*) View(s)
GCP DataTransformers
Data (*) Query Service(s)
Synopsis Service
ResultSet Service
Details(*) Service(s)
Data Query Parameters
Query Result Set
Incremental Query Parameters
Result Set
Details Query Parameters
Detailed Results
GCP DataSources
Koios Search Engine
(*) Data type specific

Wish List I

- More robust performance (probably need to replace some of the technology used in initial implementation – need better solutions)
- Increase usability and utility, e.g.
  - Facility to cancel a query
  - Ability to save results (e.g. list of hits) for use elsewhere
  - Online help
- Add more GCP data types, e.g.
  - Passport data
  - Broader phenotype queries (i.e. agronomic)
  - Genetic, QTL and genotype
  - Genomic (e.g. annotation, microarray)
  - HPC analysis outputs
  - etc…

Wish List II

- Add more important query “use cases” e.g.
  - Query by map position (in the GUI but not yet working)
- Connect more data sources e.g.:
  - More GCP MOBY web services (from more providers)
  - More genomic data:
    - Genomic annotation
    - More rice mutant databases
    - GCP comparative stress gene catalog
  - More hyperlinks back to data sources of origin (web sites)
- Localized viewing of data with graphical

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Towards a Crop Information Network

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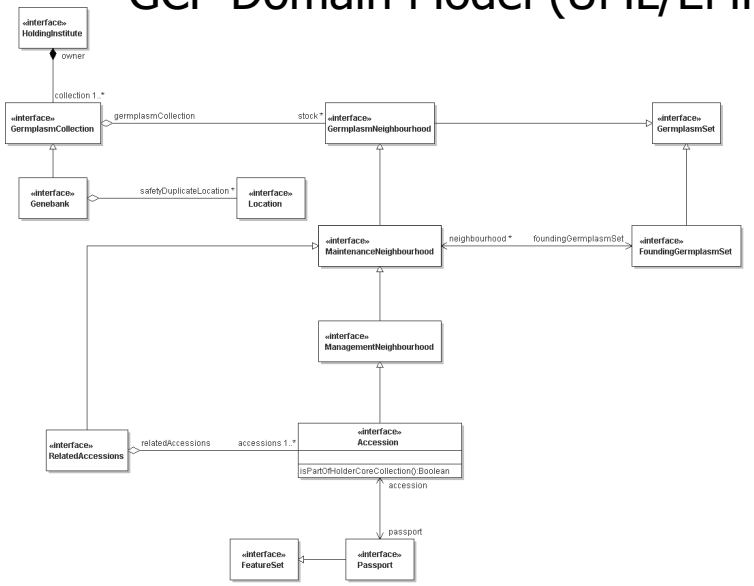
Crop Network Internet Protocols

- **Desired (and Initial GCP Dream):**
  - One protocol to rule them all… (BioMOBY?)
- **Reality:**
  - Multiple protocols with various zealous religious disciples:
    - BioMOBY (www.biomoby.org)
    - GDPC (http://www.maizegenetics.net/gdpc/)
    - BioCASE/Tapir (http://www.tdwg.org/activities/tapir/)
    - VPIN/sswap.info (http://sswap.info; http://vpin.ncgr.org)
    - SoapLab (http://www.ebi.ac.uk/Tools/webservices/soaplab/overview)

GCP Platform Wrapping of GCP Domain Model Mappings onto Specific Network Protocols

GCP Domain Model (UML/EMF)



GCP Data* API

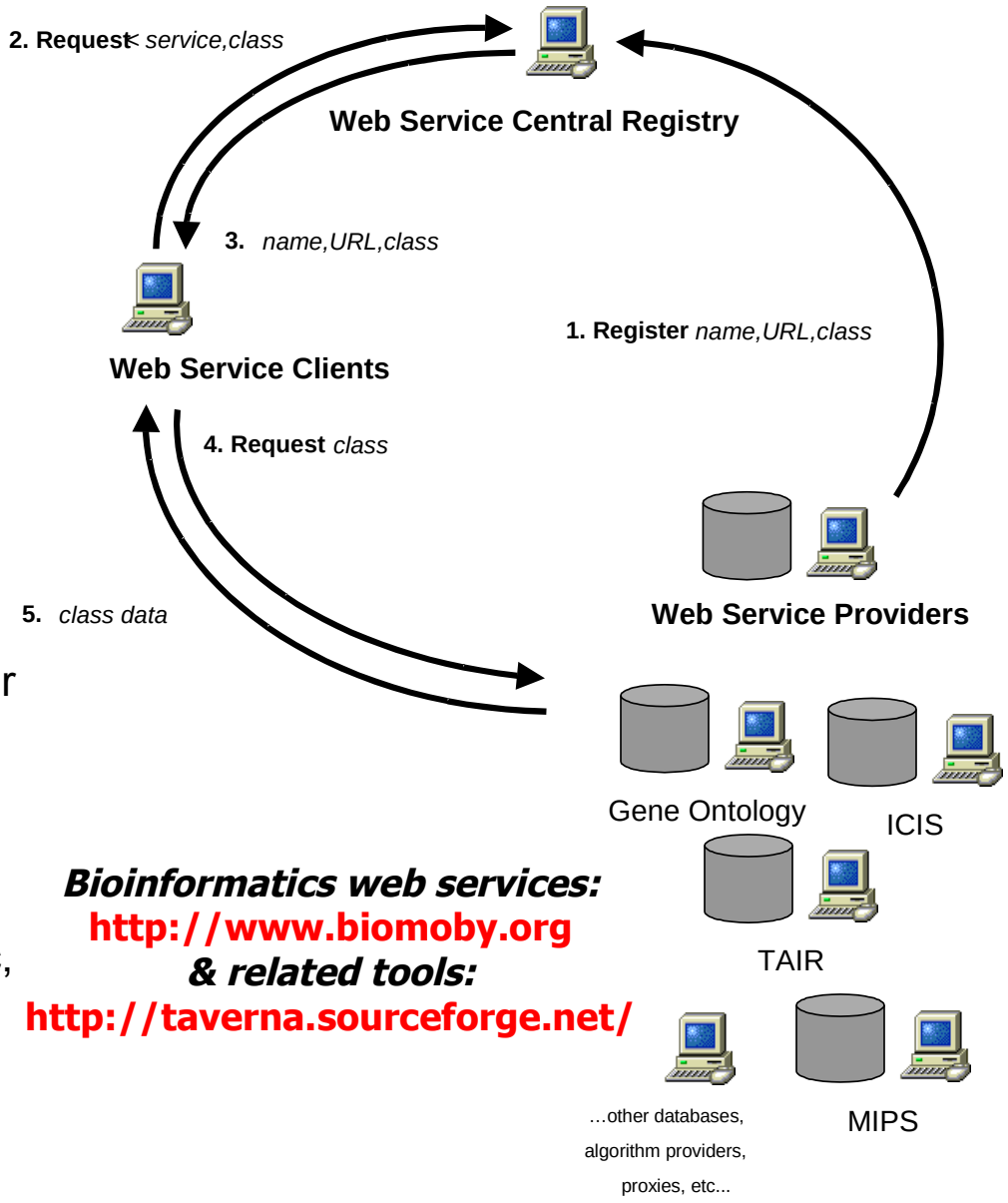
SOAP Web Services (BioMOBY, SoapLab, GDPC)

XML Schemata: GCP Data Templates, BioCASE/Tapir

OWL/RDF Ontology: VPIN/SSWAP.info

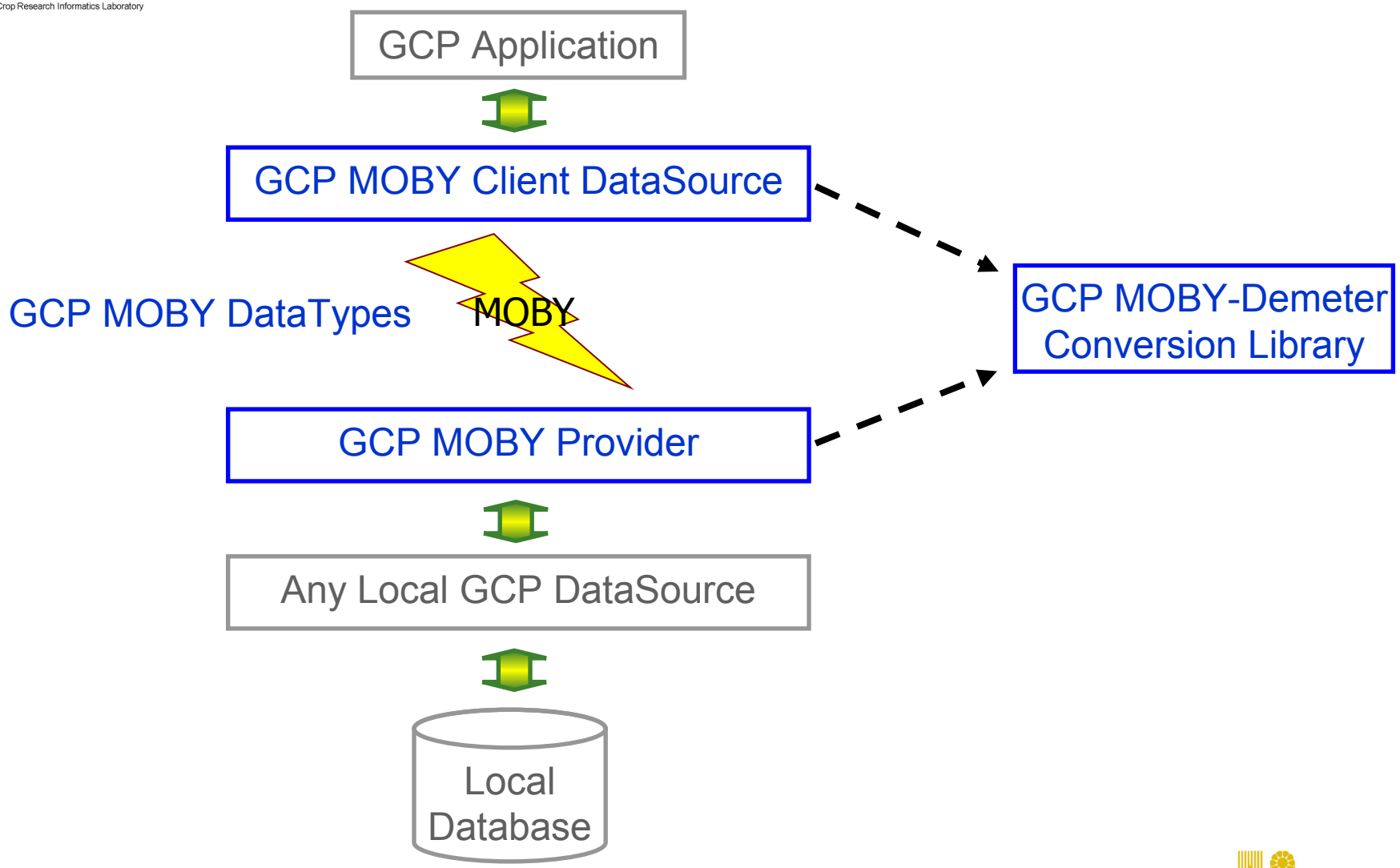
Protocols: Web Services for Research?

- Dynamical discovery of internet information ***without*** direct web surfing, (machine-friendly web surfing…).
- System is composed of a ***Central Registry*** (automated "yellow pages" of computer services), ***Service providers*** ("suppliers") and ***Clients*** ("customers") components
- ***Service providers*** register services and associated data types with ***Central*** (decide when and what to register…)
- ***Clients*** query the ***Central Catalog*** for services and get to appropriate providers that deliver the actual services for data types of interest to the client; Clients can be web portals or standalone tools (Note: ***anybody*** can host a client/portal (is democratic, end-user focused networking)
- The data values are exchanged between components as XML documents.



Bioinformatics web services:
http://www.biomoby.org
& related tools:
http://taverna.sourceforge.net/

GCP (Java) MOBY Architecture



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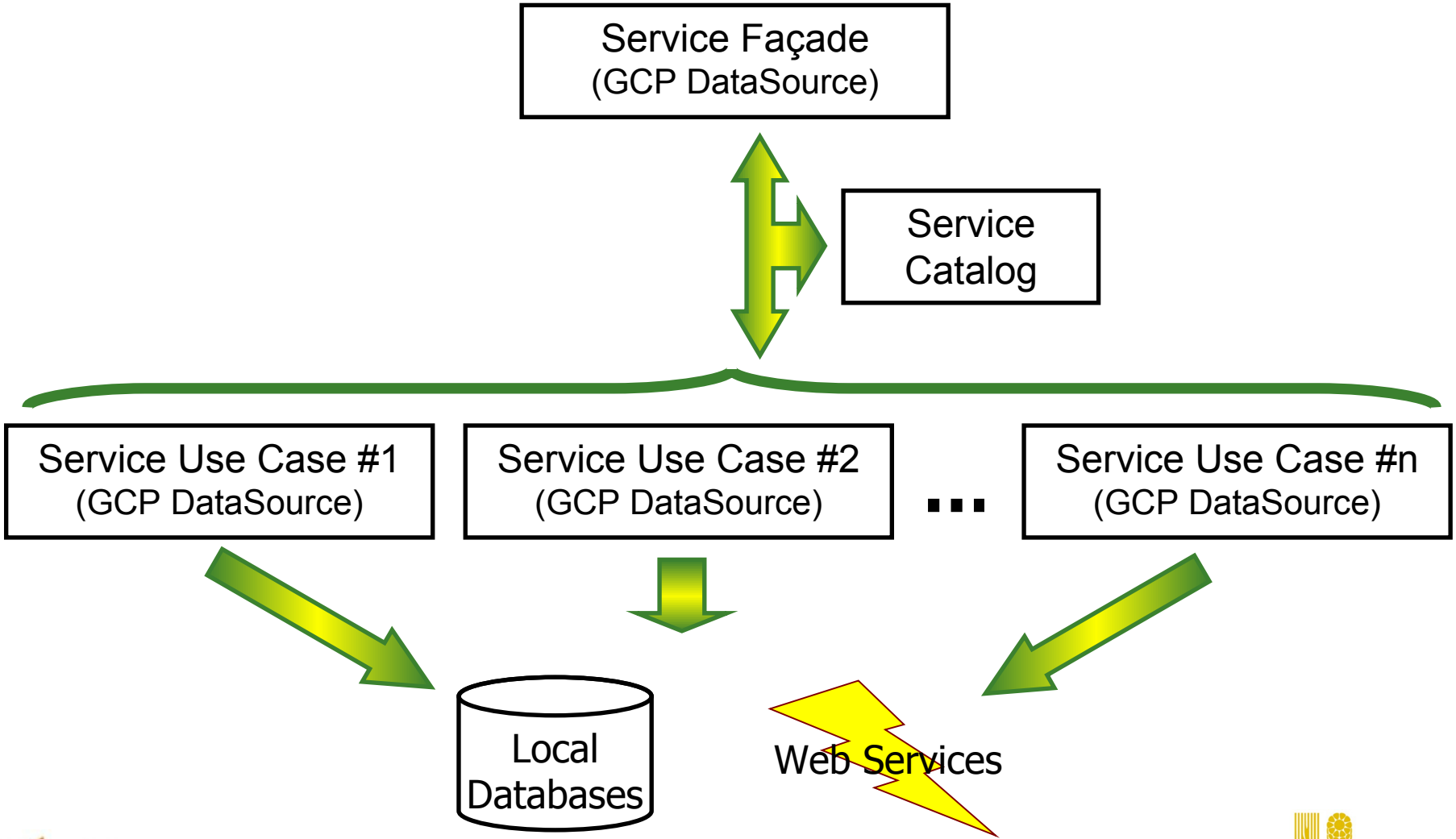
MOBY Framework Support

- Conversion of MOBY data types to GCP "Demeter" domain model (Java) objects (Pantheon/Ceres/projects/CeresMoby)
- Moby Client GCP DataSource (Pantheon/Osiris/projects/MOBY)
- Moby GCP Web Service Provider (Pantheon/Belenus/webservices/MOBY)

GCP Client DataSource (Service Delegation Architecture)



Pantheon Ceres: CeresDataSourceUtil

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GCP Domain Model – the Gory Details…
(forsake all hope all ye who enter here…)

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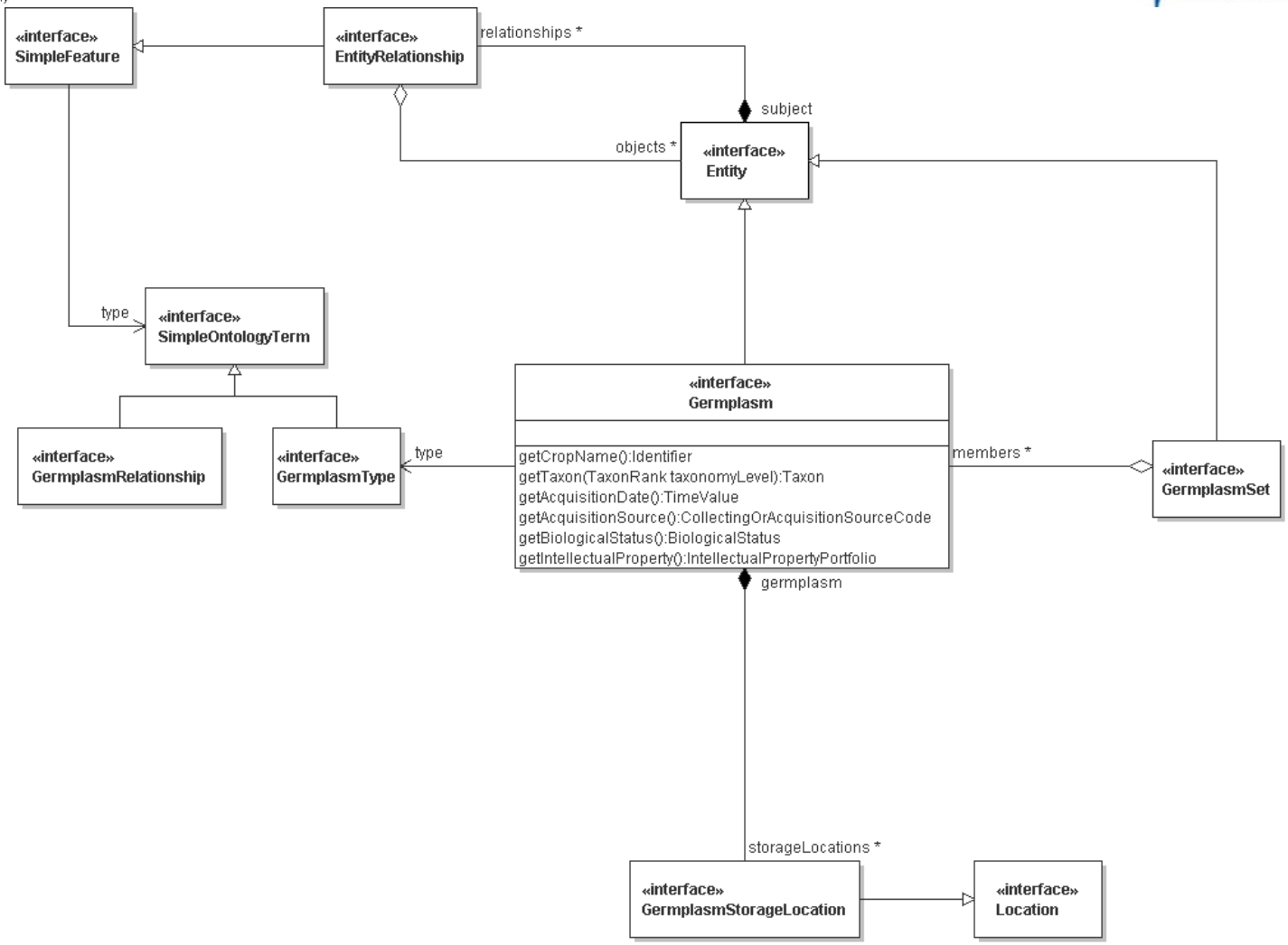
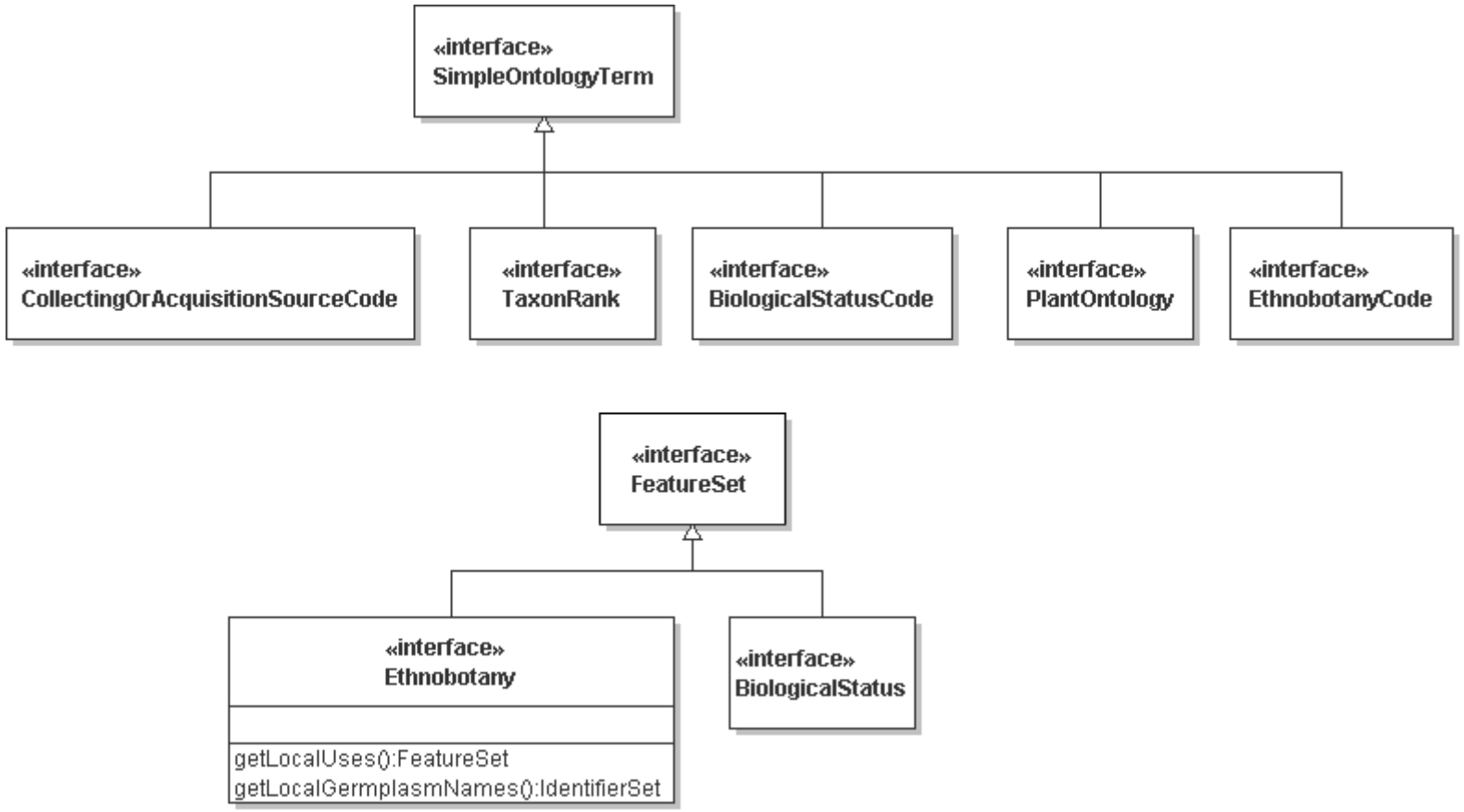
CIMMYT

Excerpt of GCP Model (Germplasm)

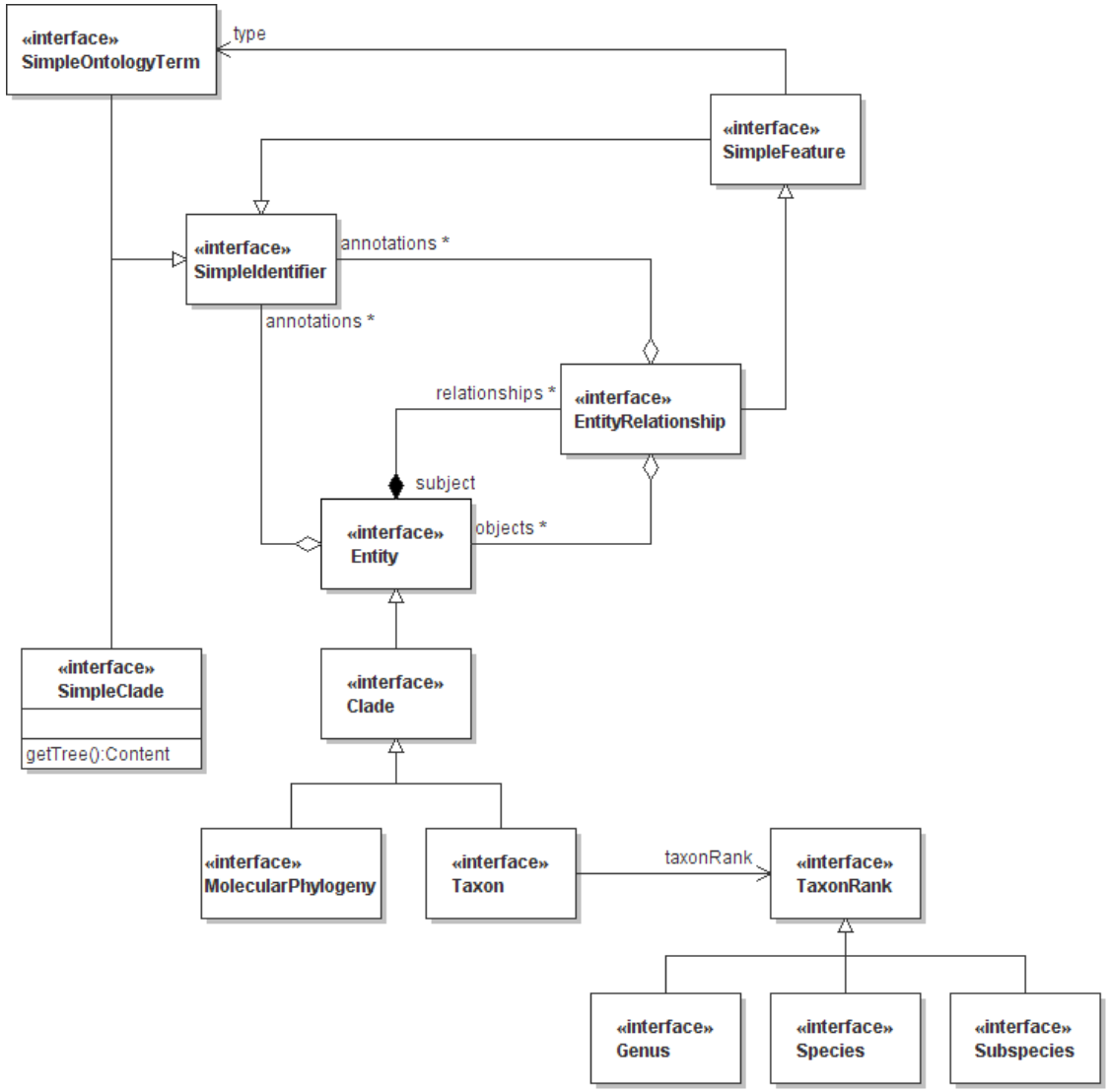


http://pantheon.generationcp.org/demeter

Excerpt of GCP Model (Germplasm descriptors)



Excerpt of GCP Model (Germplasm Taxonomy)



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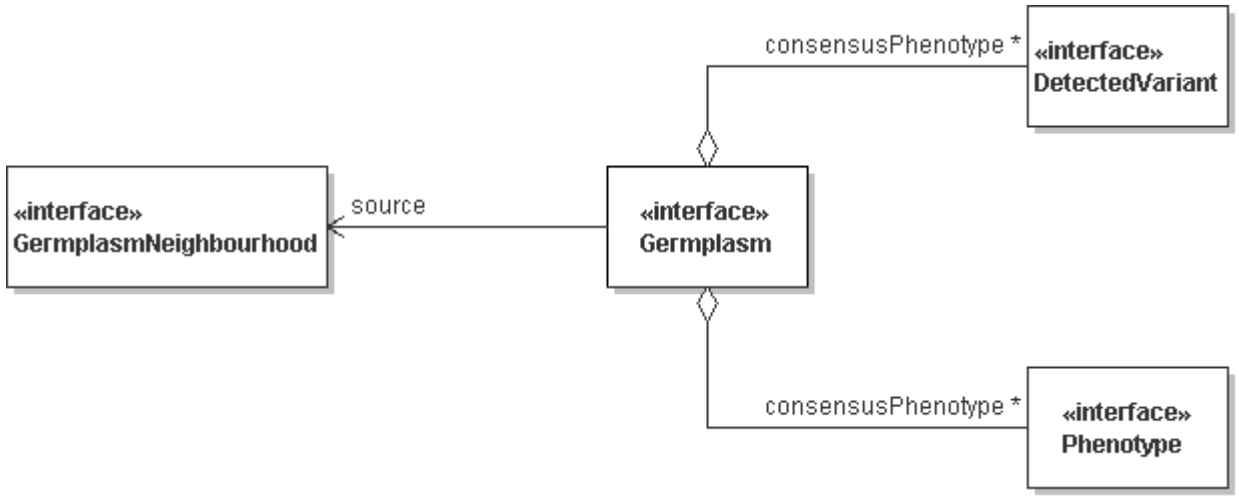
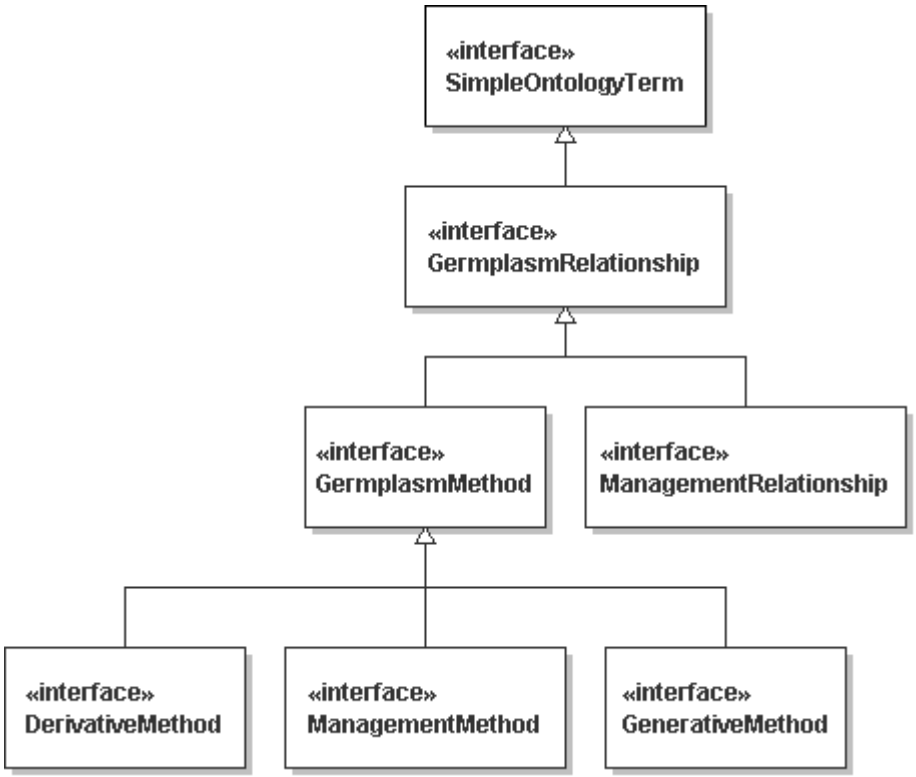
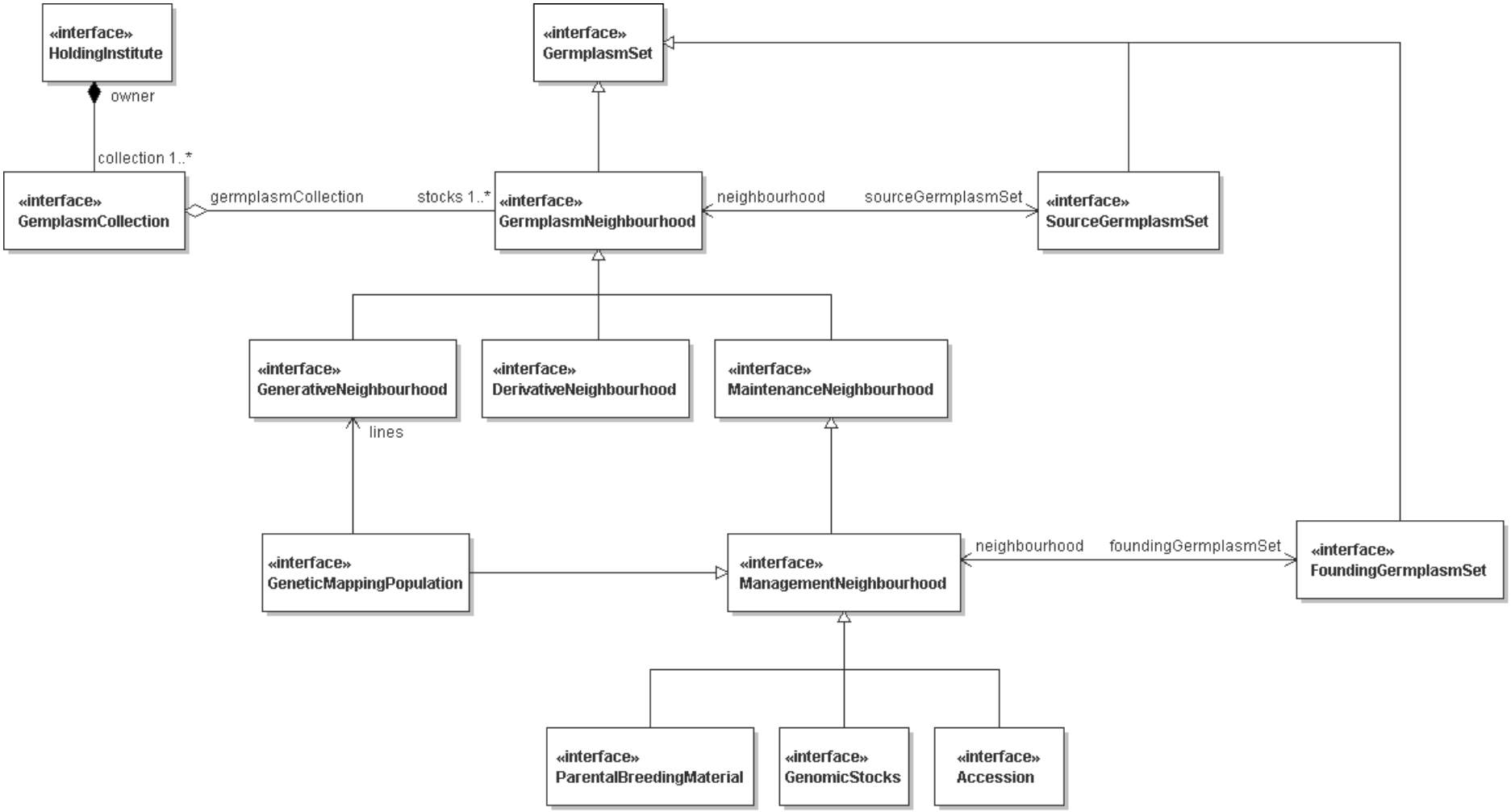
Excerpt of GCP Model (Germplasm characteristics)



Excerpt of GCP Model (Germplasm Relationships)



Excerpt of GCP Model (GermplasmNeighbourhood)



Excerpt of GCP Model (SourceGermplasm)

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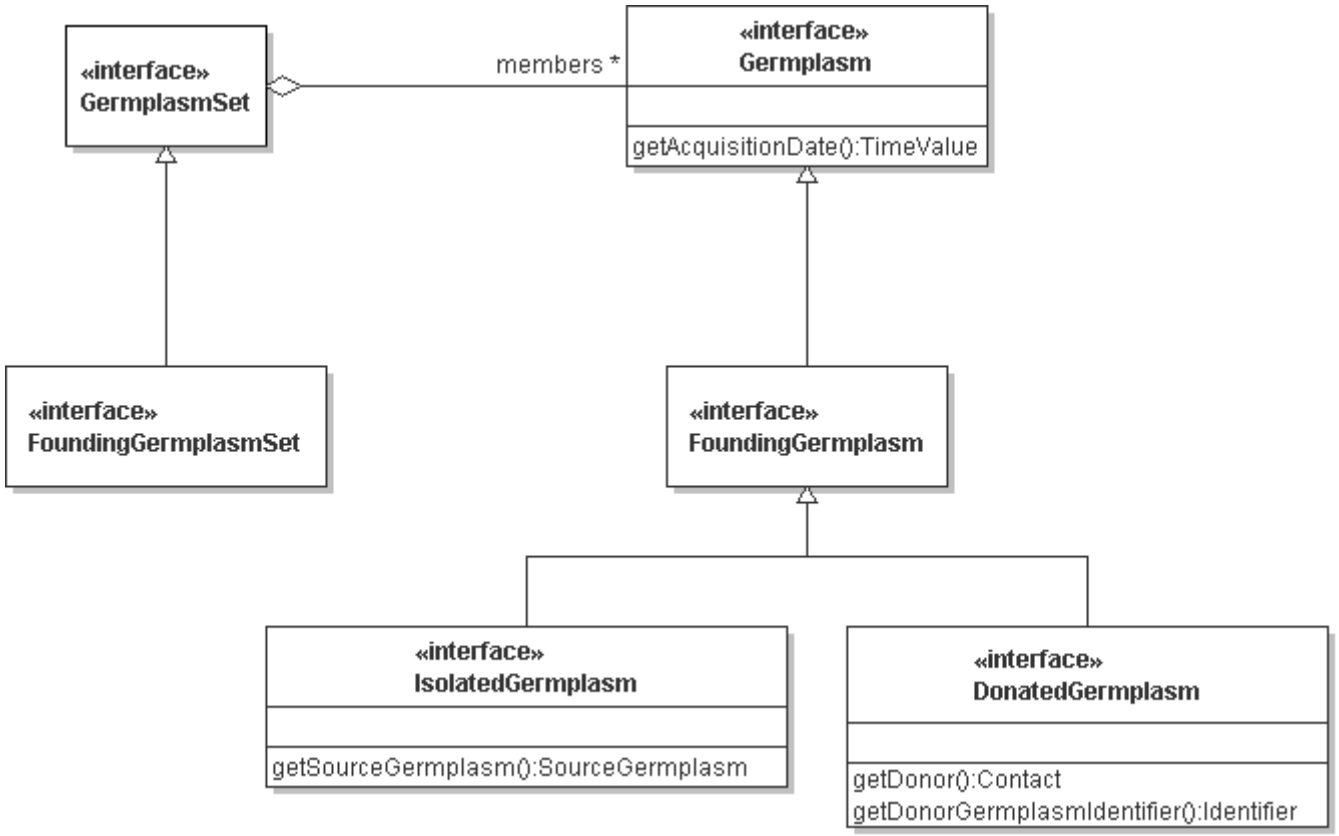
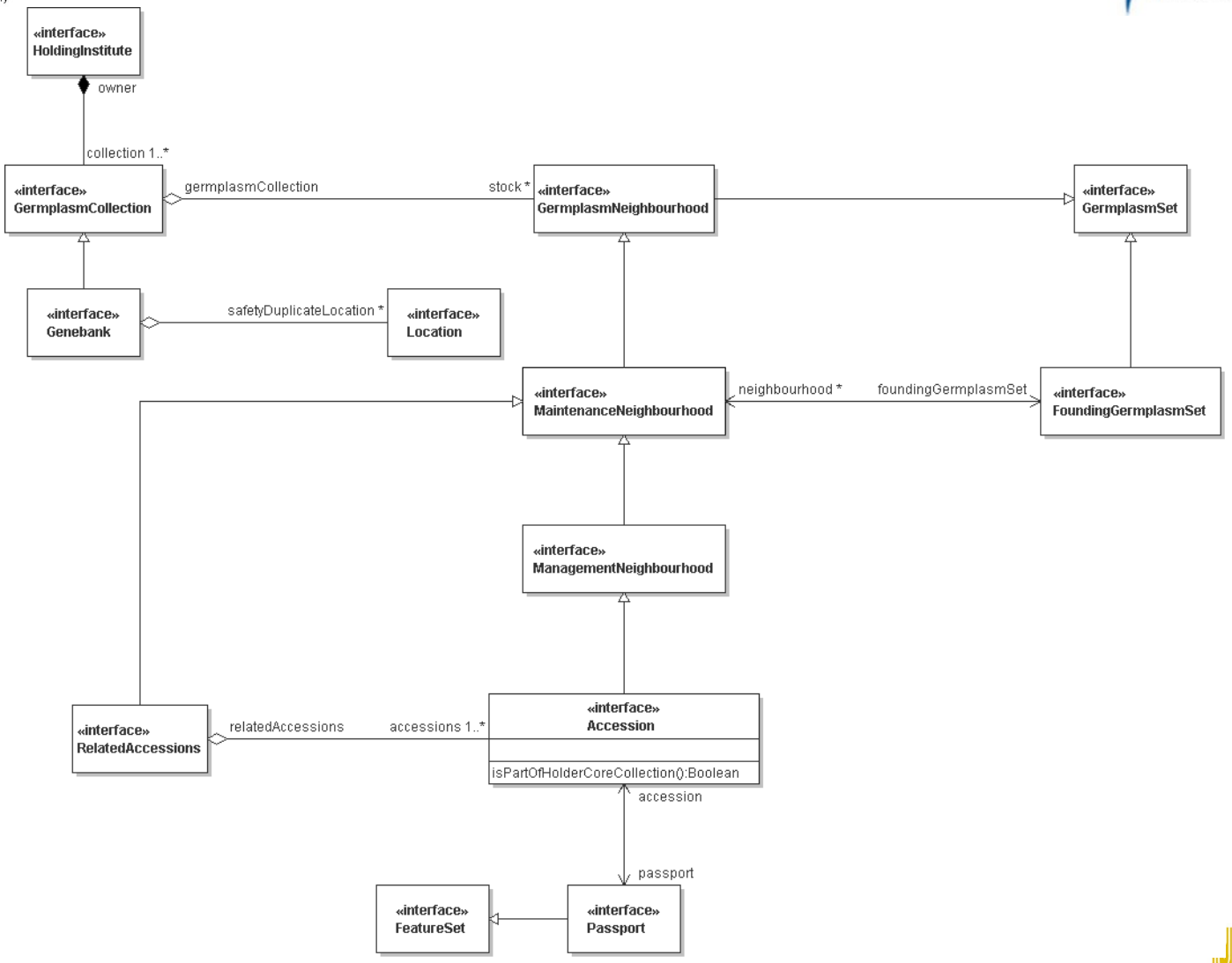
Excerpt of GCP Model (FoundingGermplasm)



Excerpt of GCP Model (Accession & Passport)



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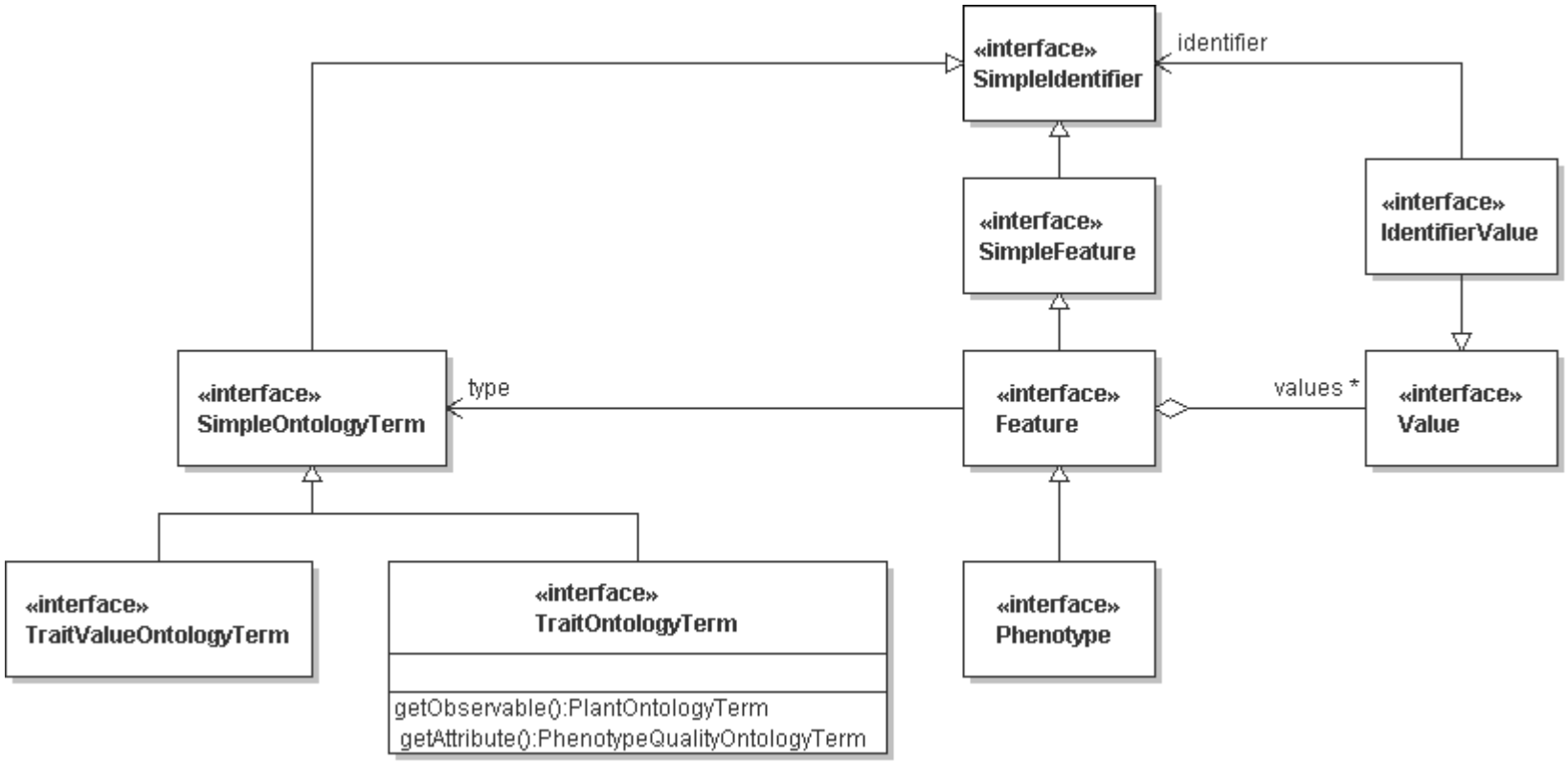
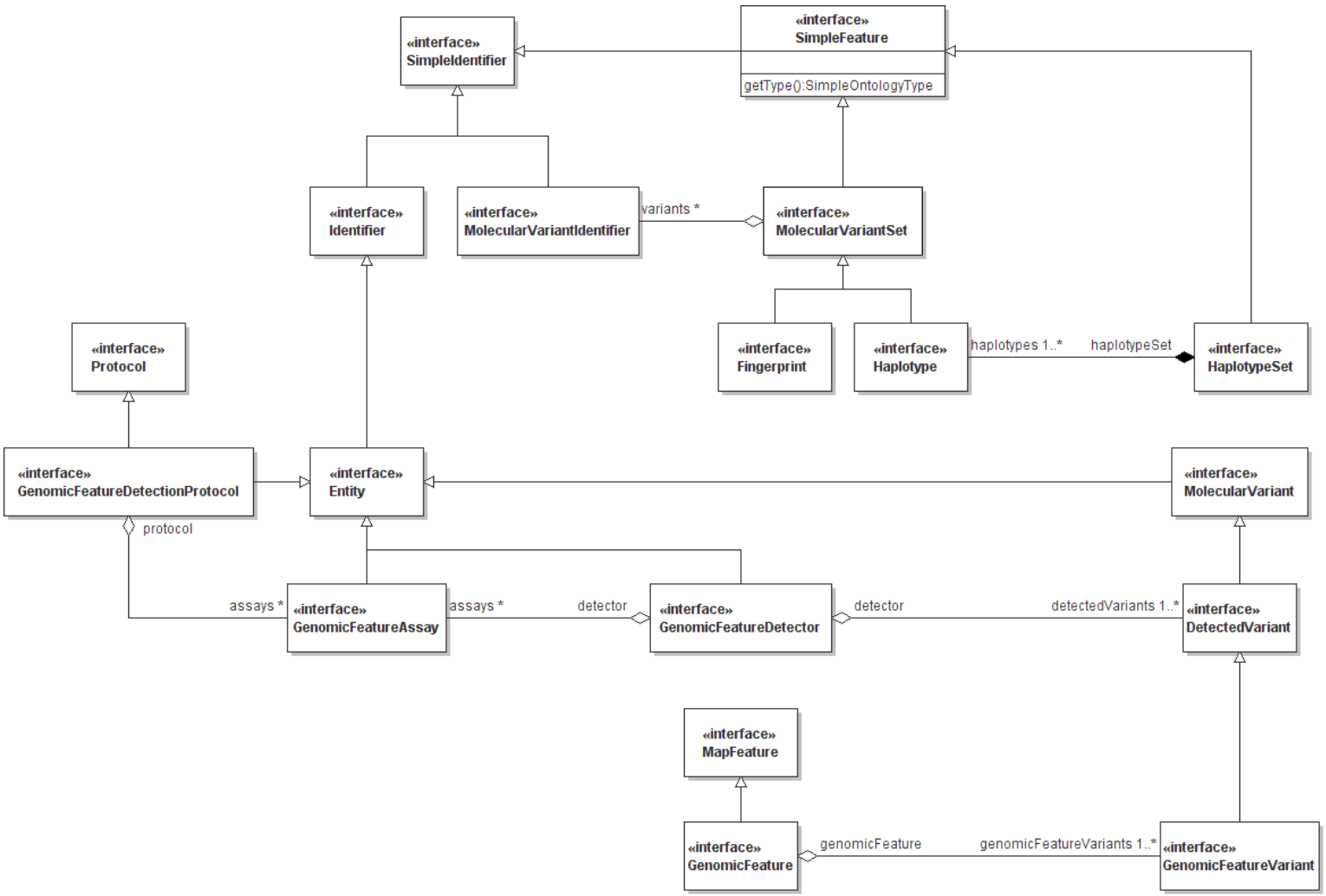
Excerpt of GCP Model (Phenotype model)



Excerpt of GCP Model (Genotype: Genomic Features)



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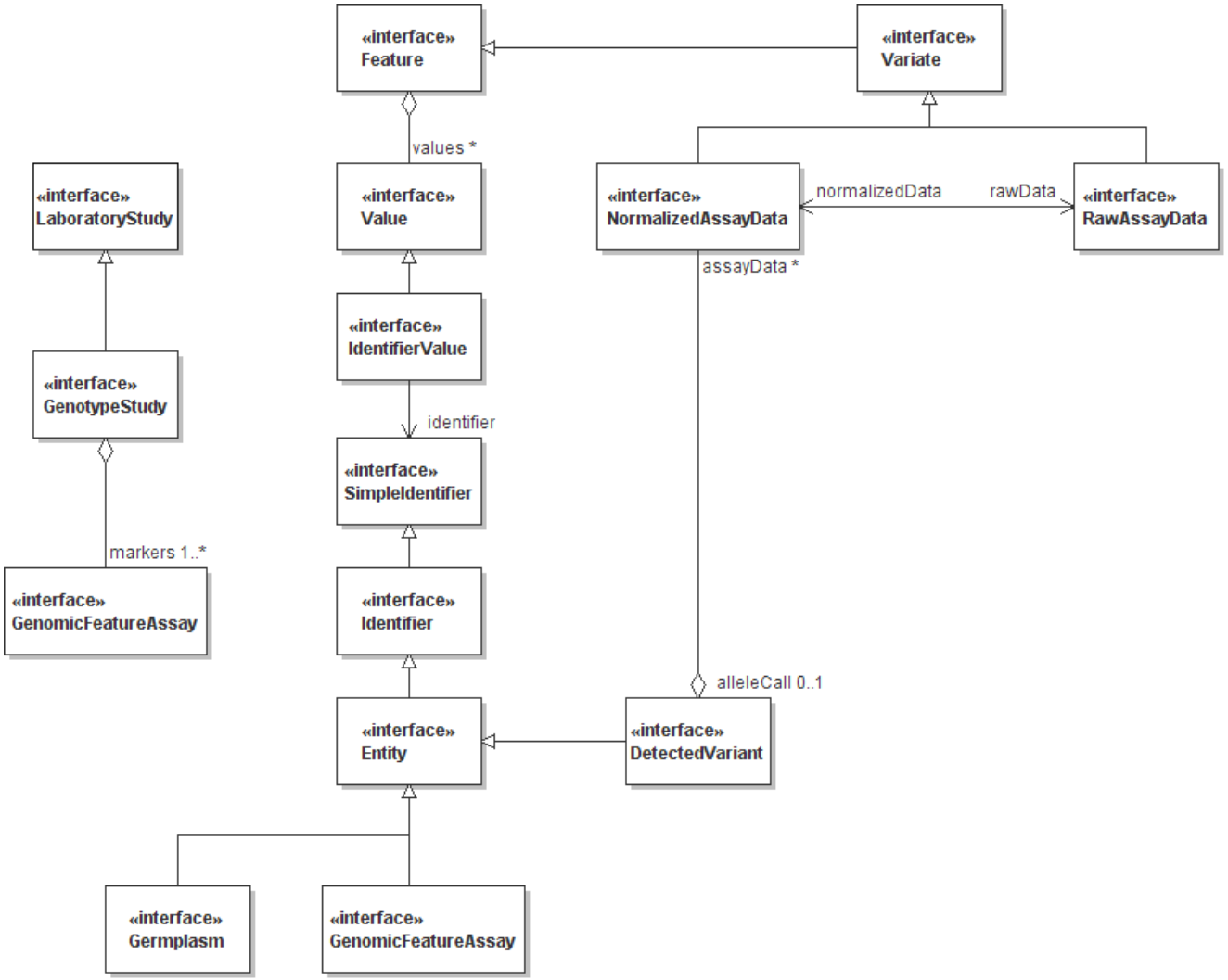
Excerpt of GCP Model (Genotype: Study)



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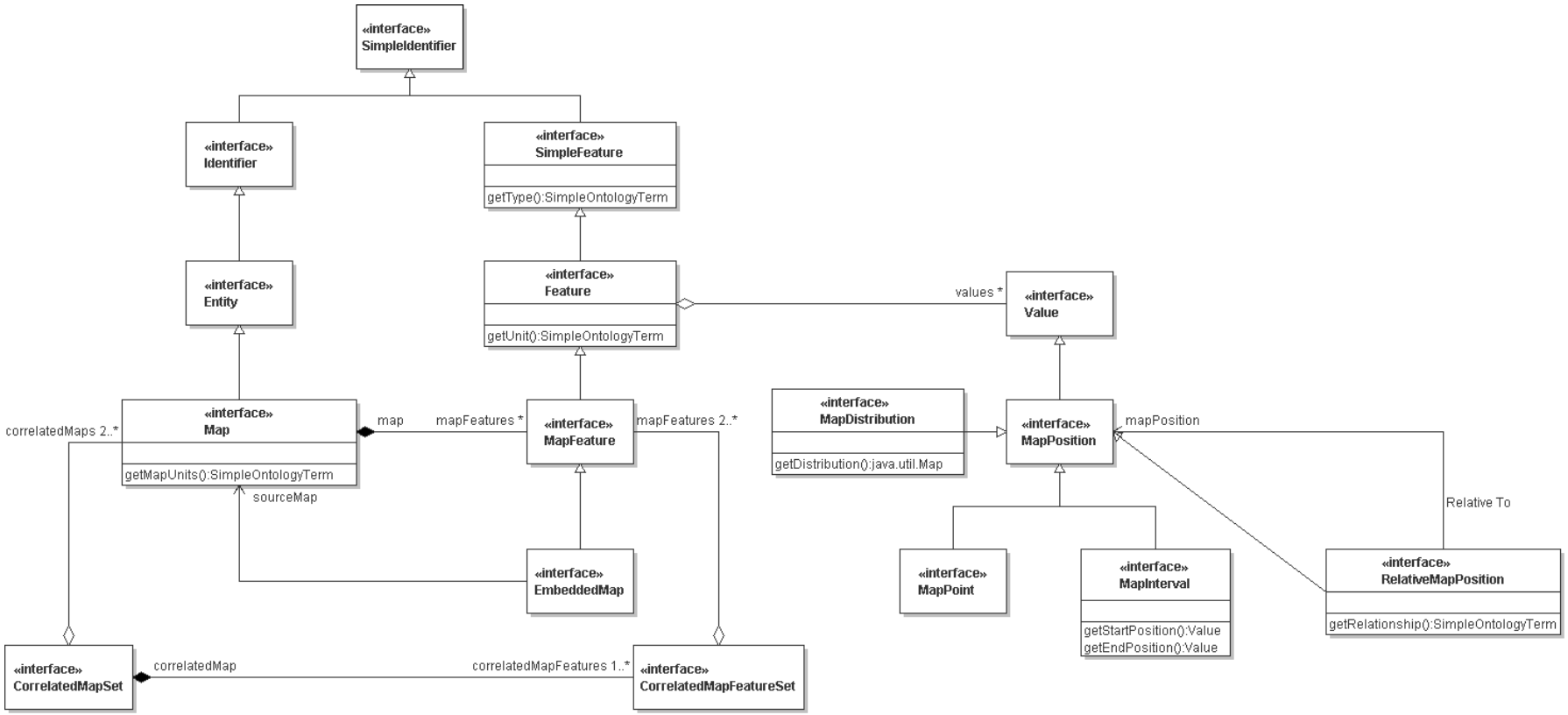
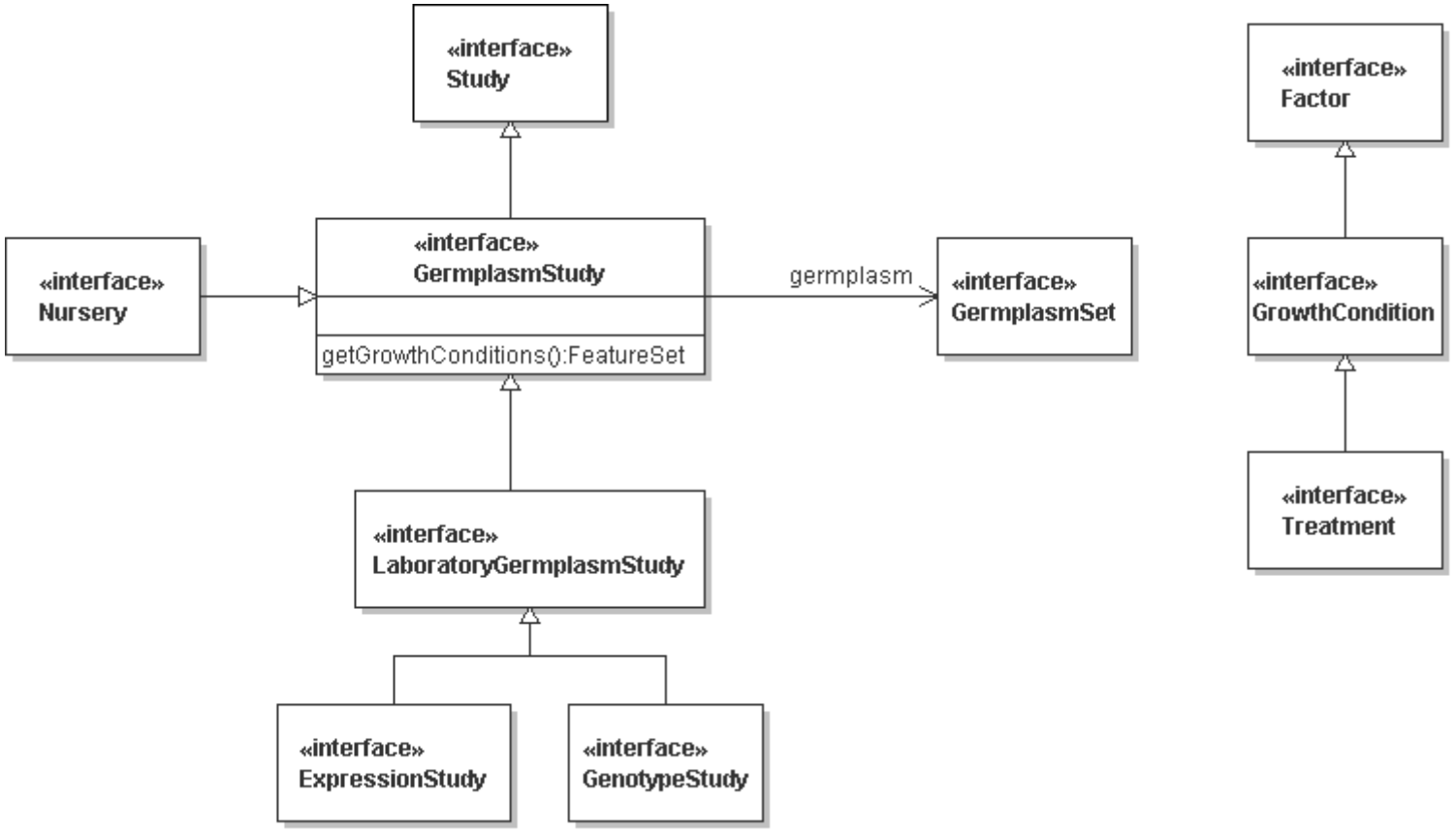
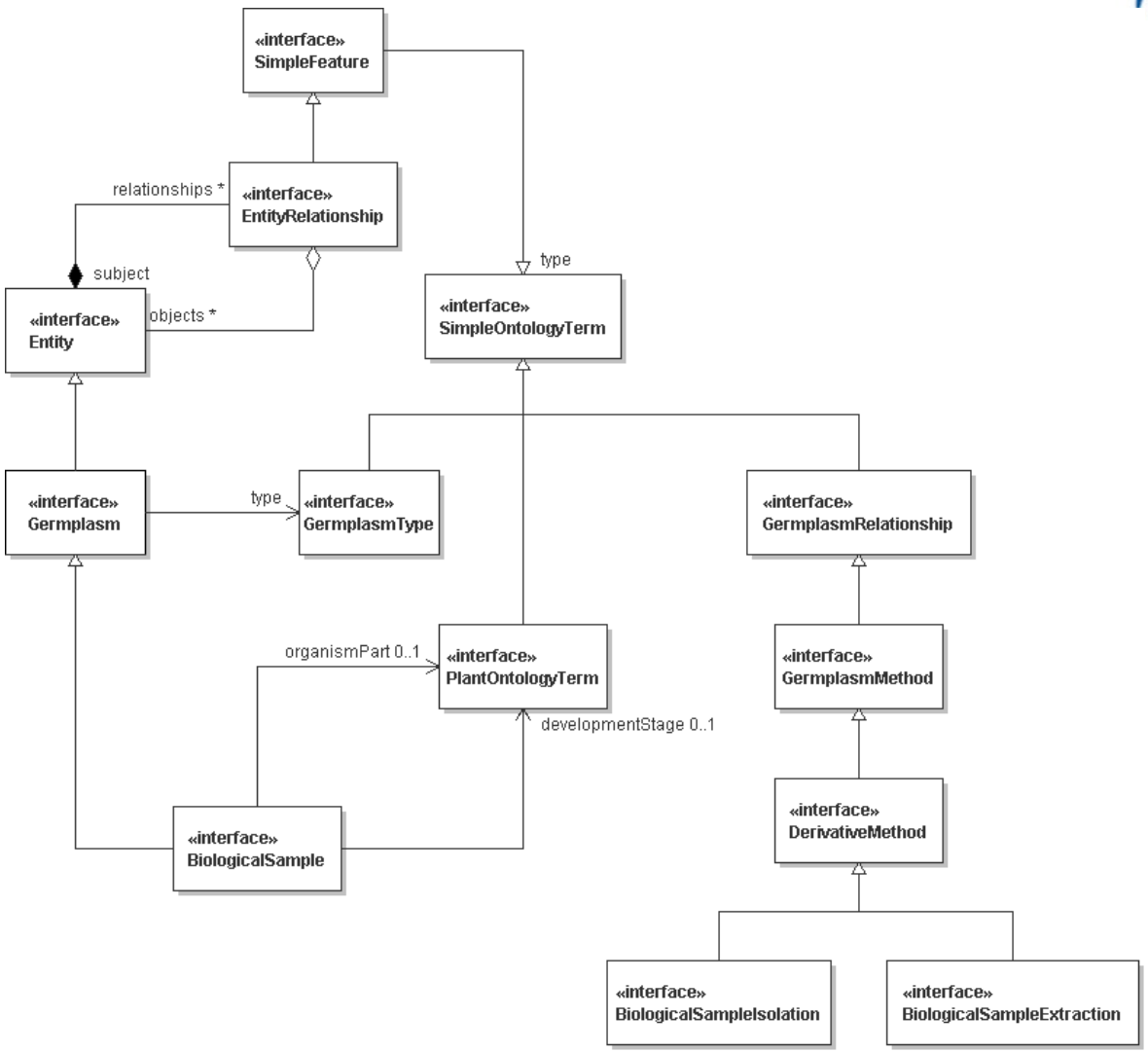
Excerpt of GCP Model (Generic Map model)



Excerpt of GCP Model (Germplasm Study)



Excerpt of GCP Model (Laboratory Sample Tracking)



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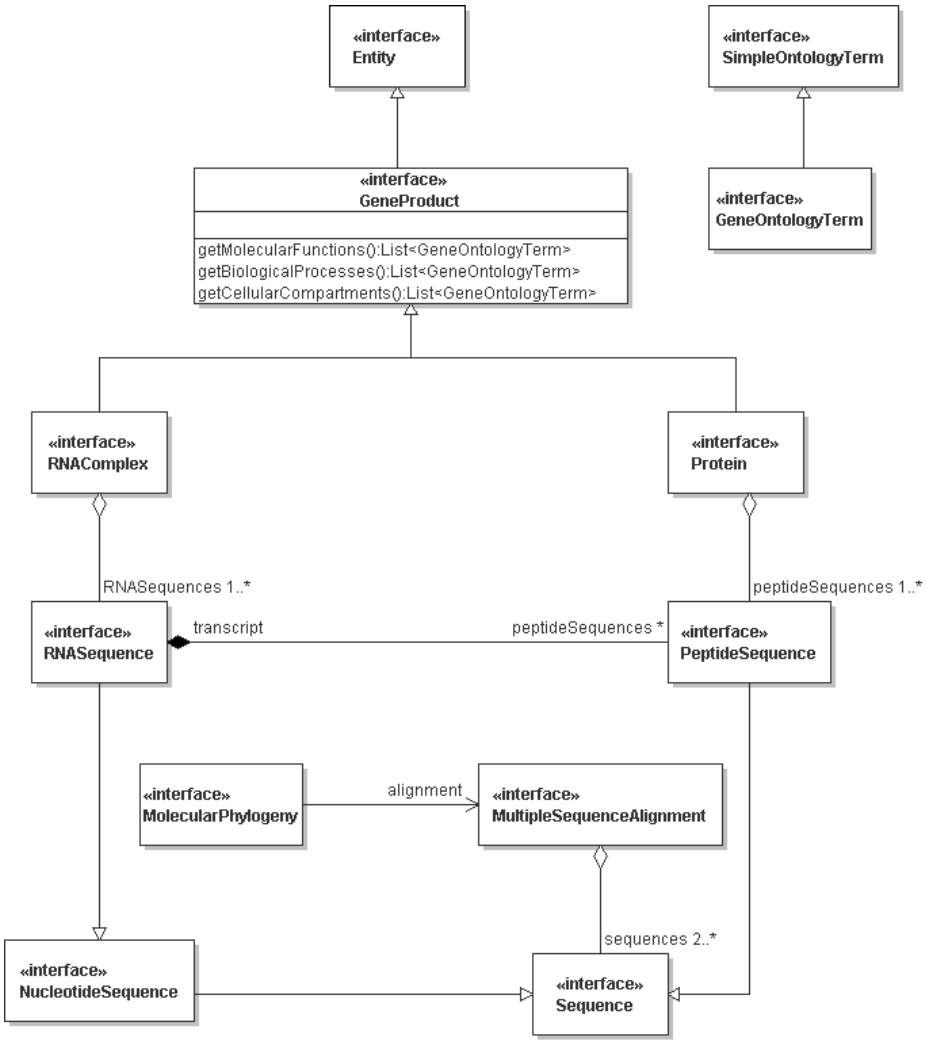
Excerpt of GCP Model (Gene Product)



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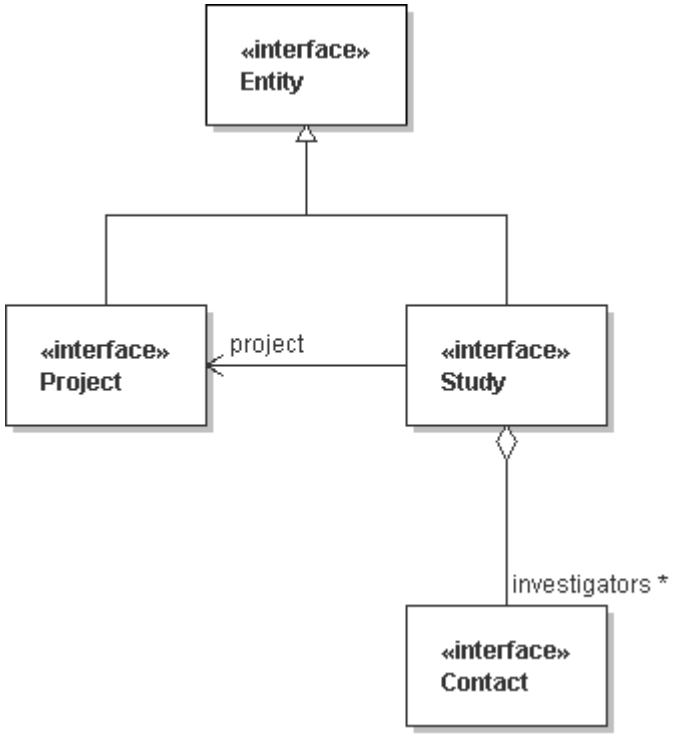
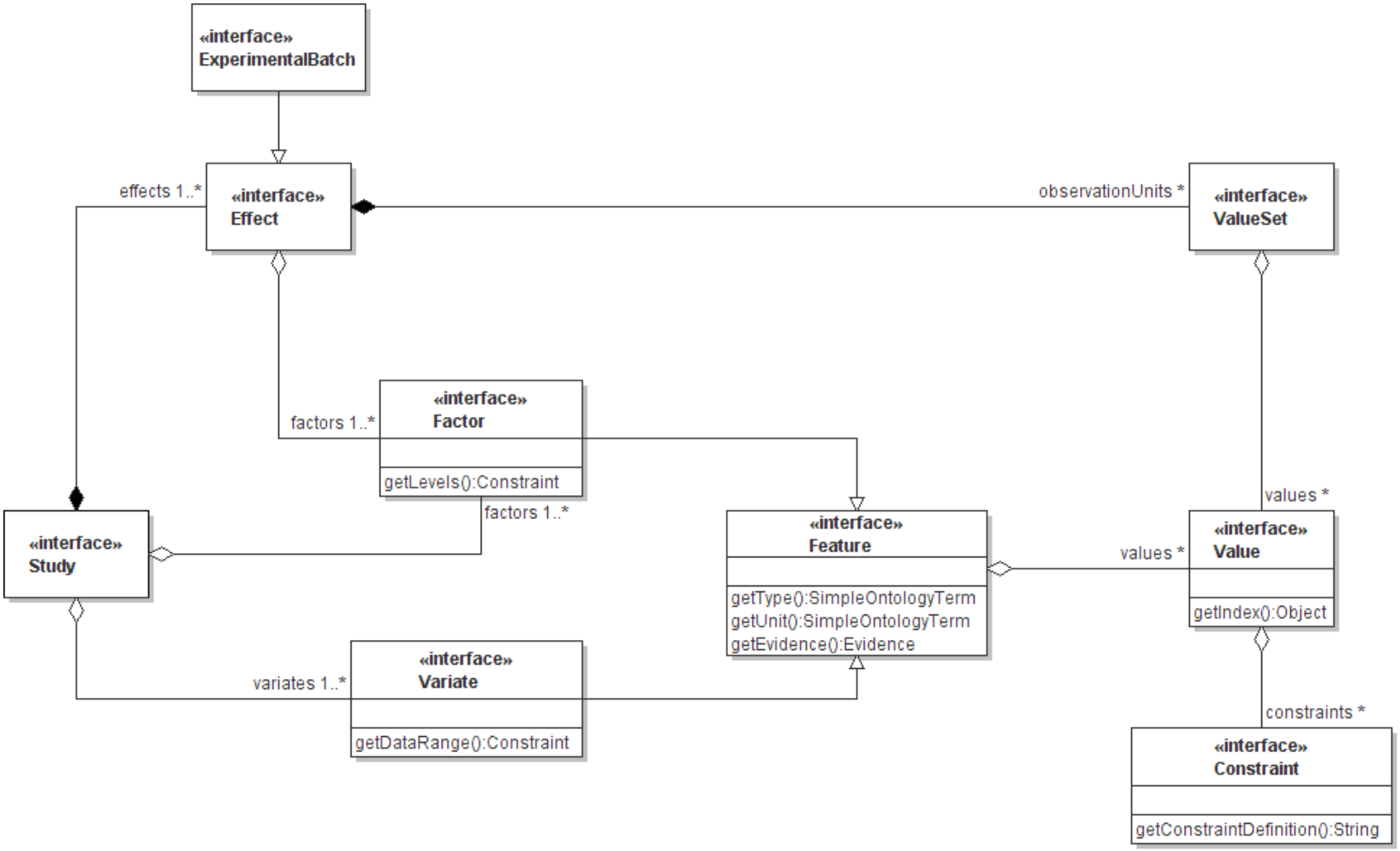
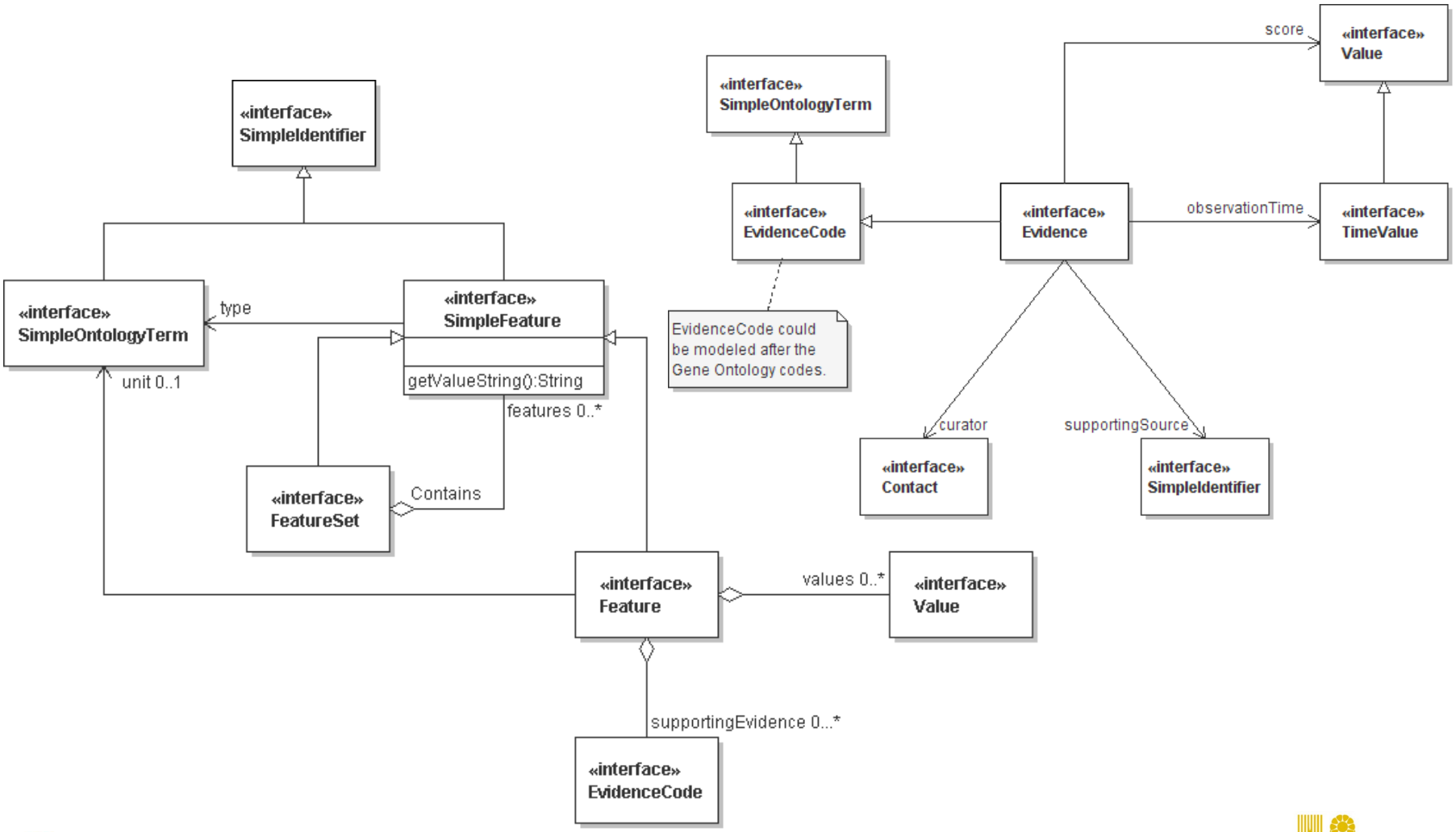
Excerpt of GCP Model (Generic Study)



Excerpt of GCP Model (Generic Study)



Excerpt of GCP Model (Generic Features)



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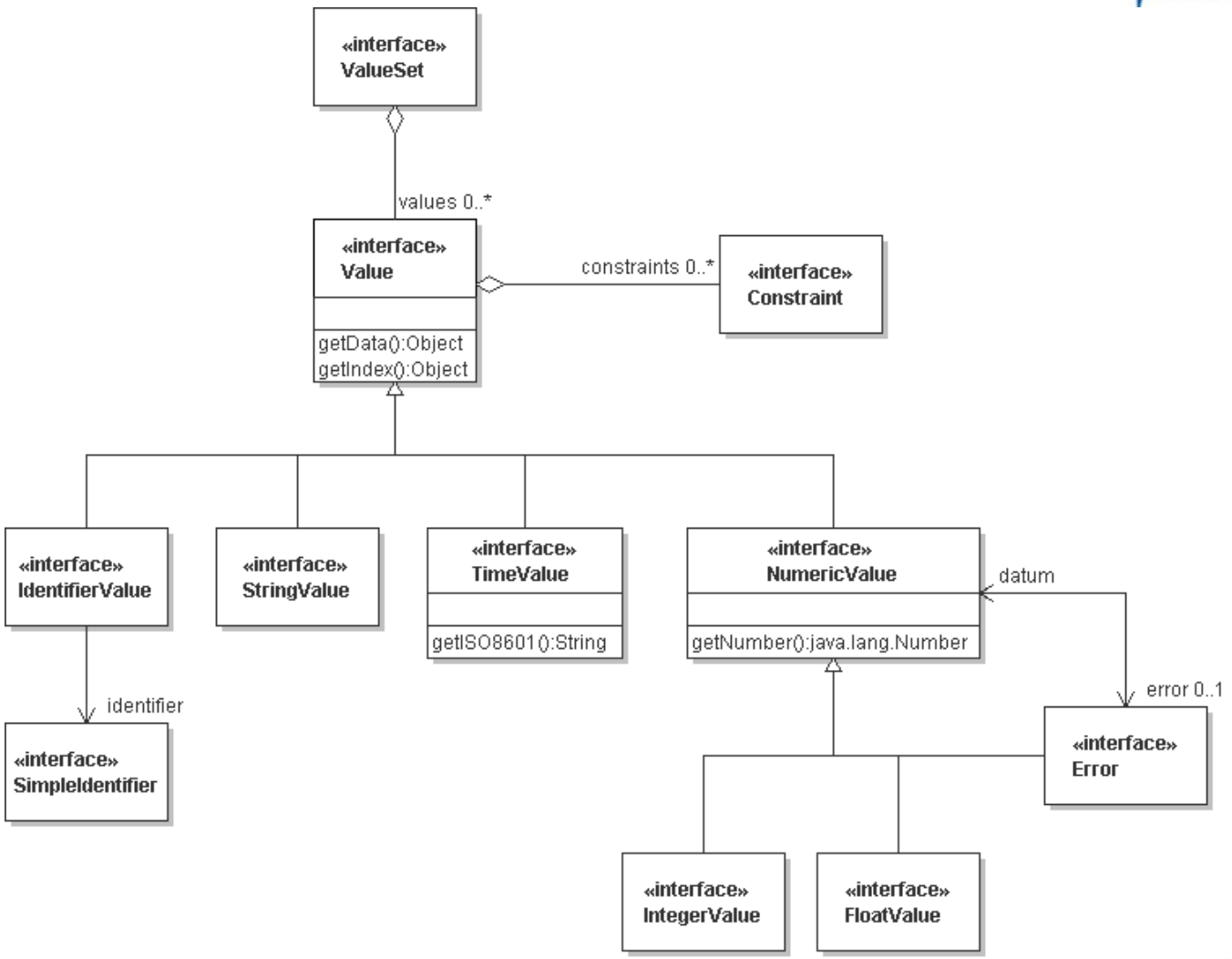
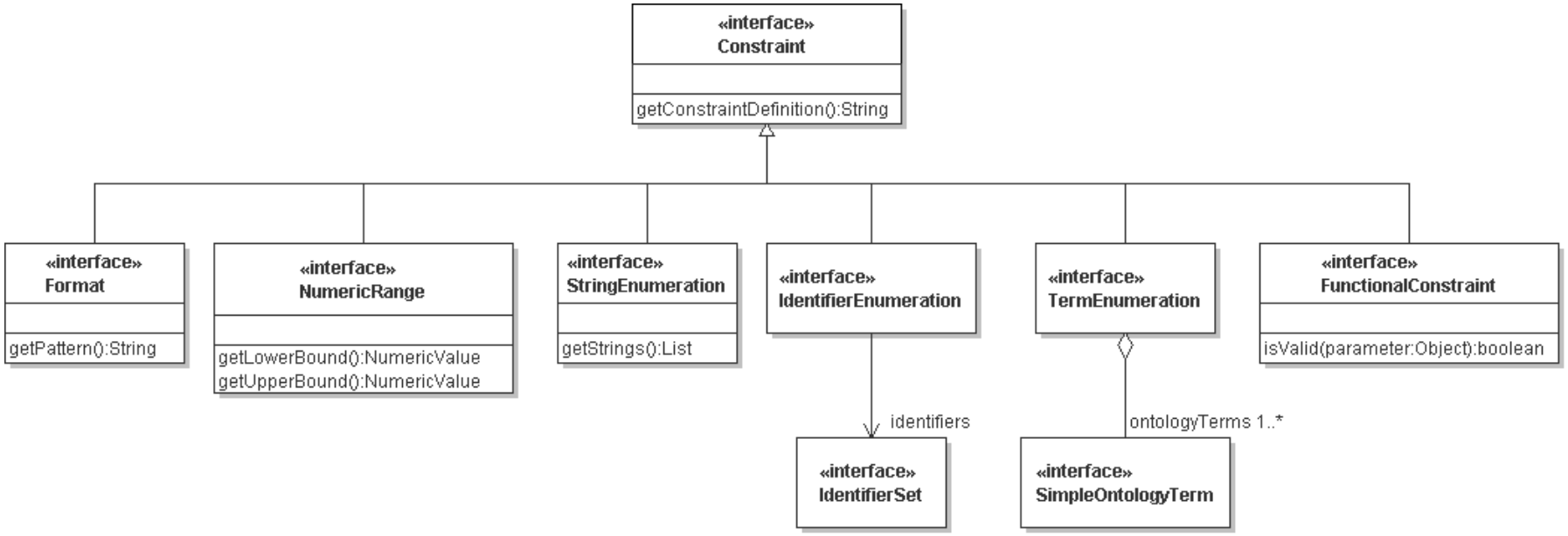
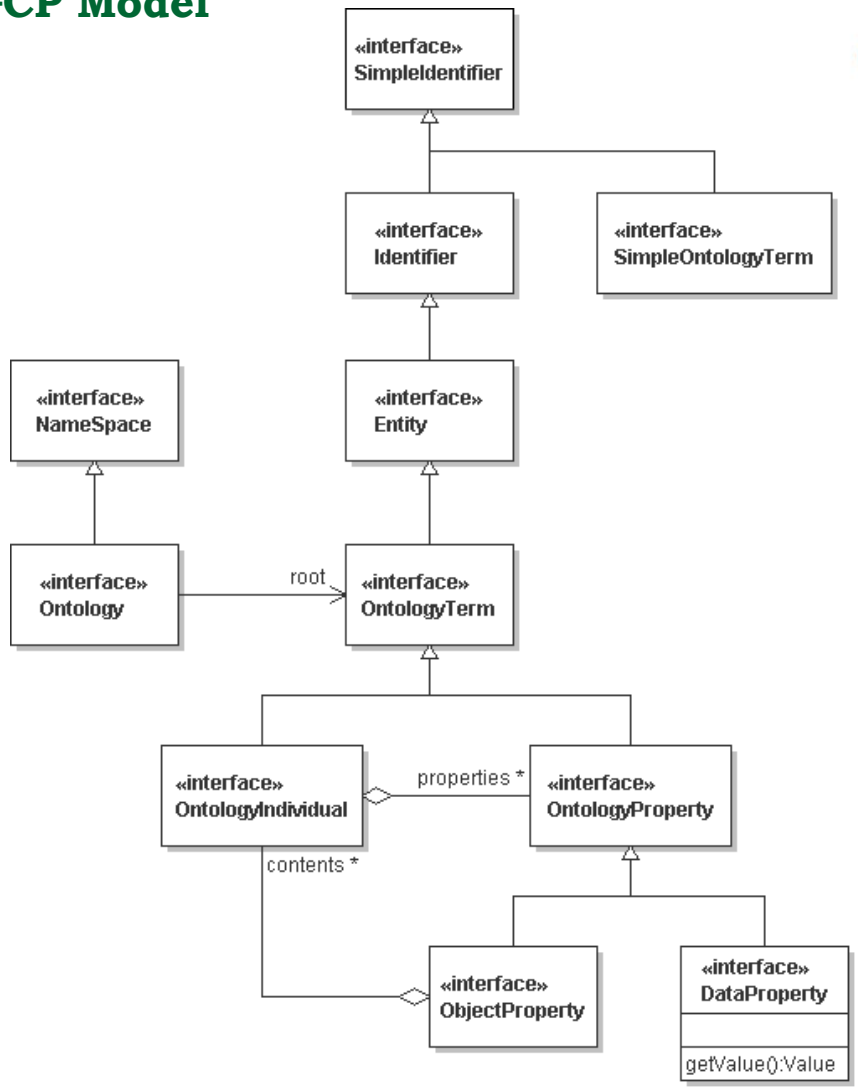
Excerpt of GCP Model (Values)



Excerpt of GCP Model (Values II)



Excerpt of GCP Model (Ontology)



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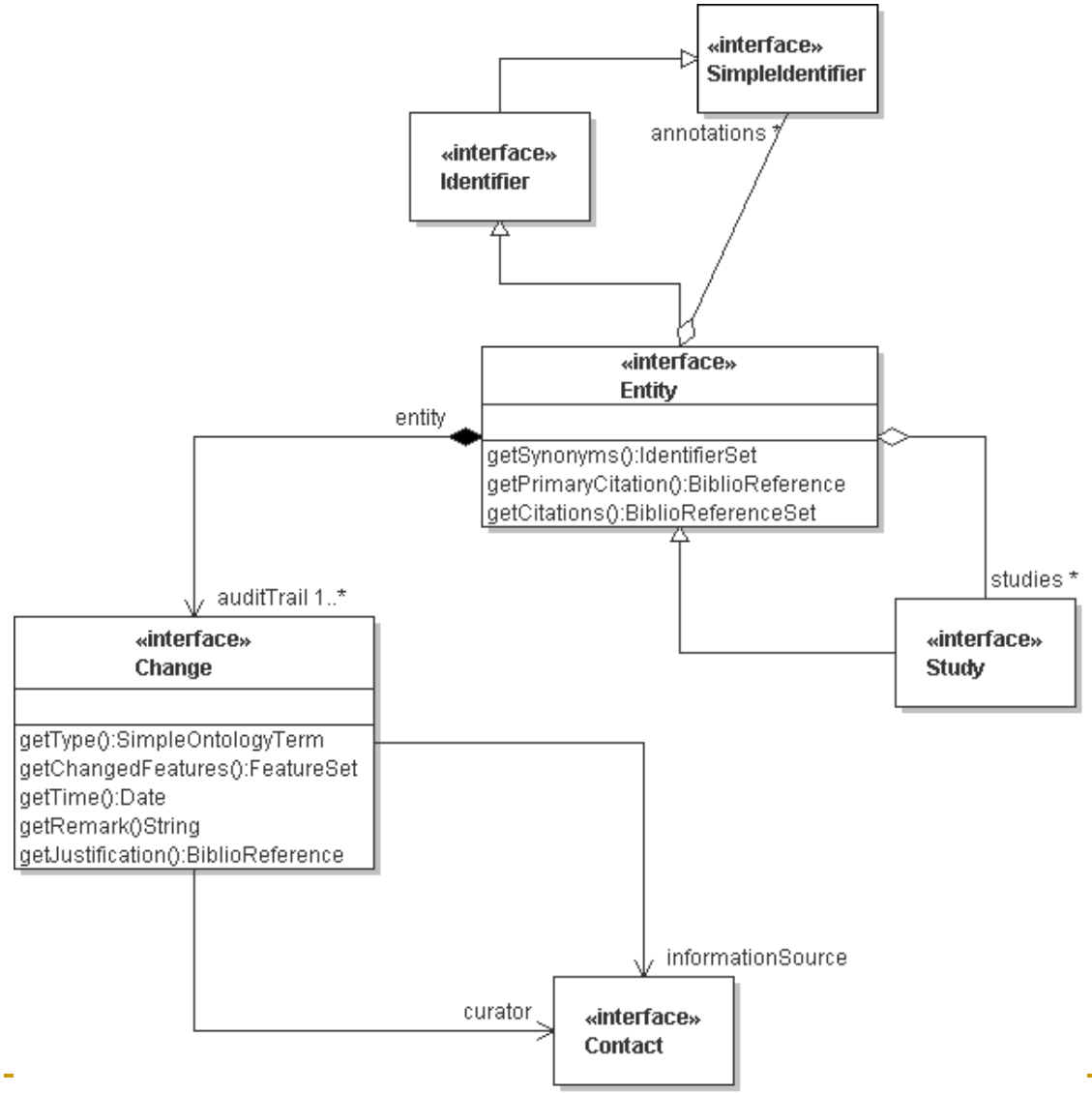
Excerpt of GCP Model (Generic Entity I)



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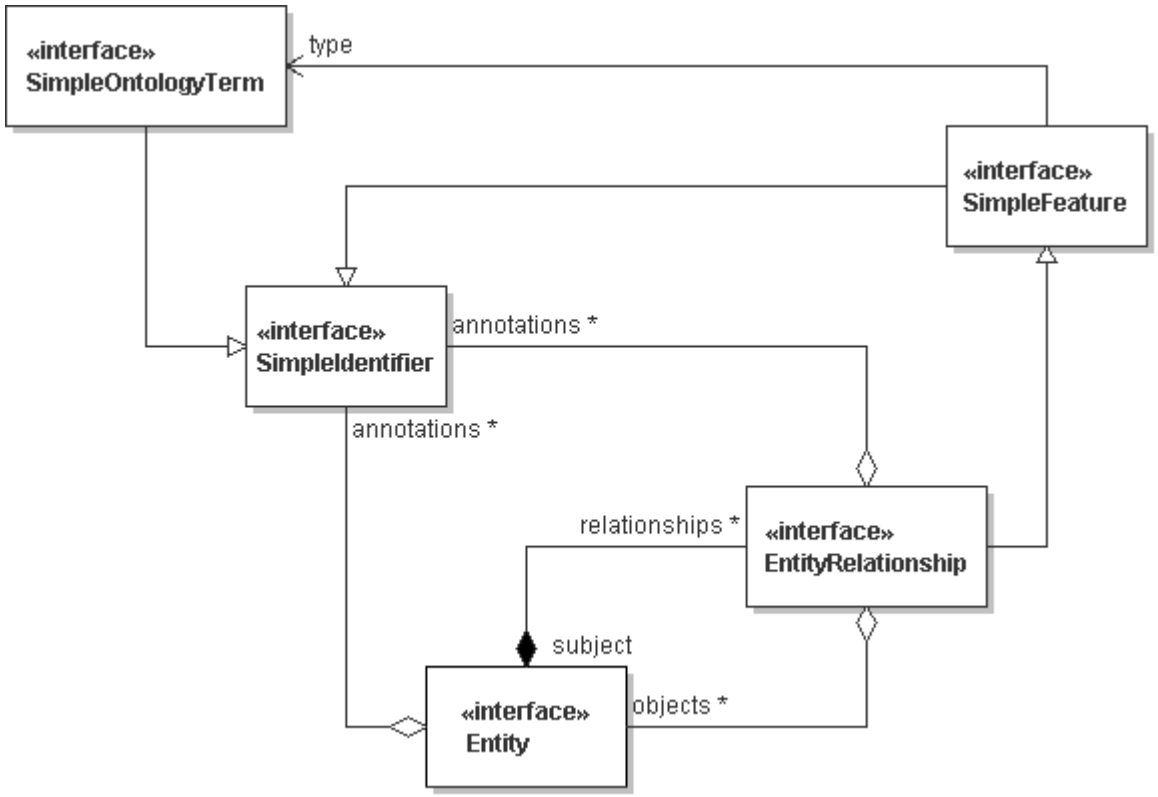
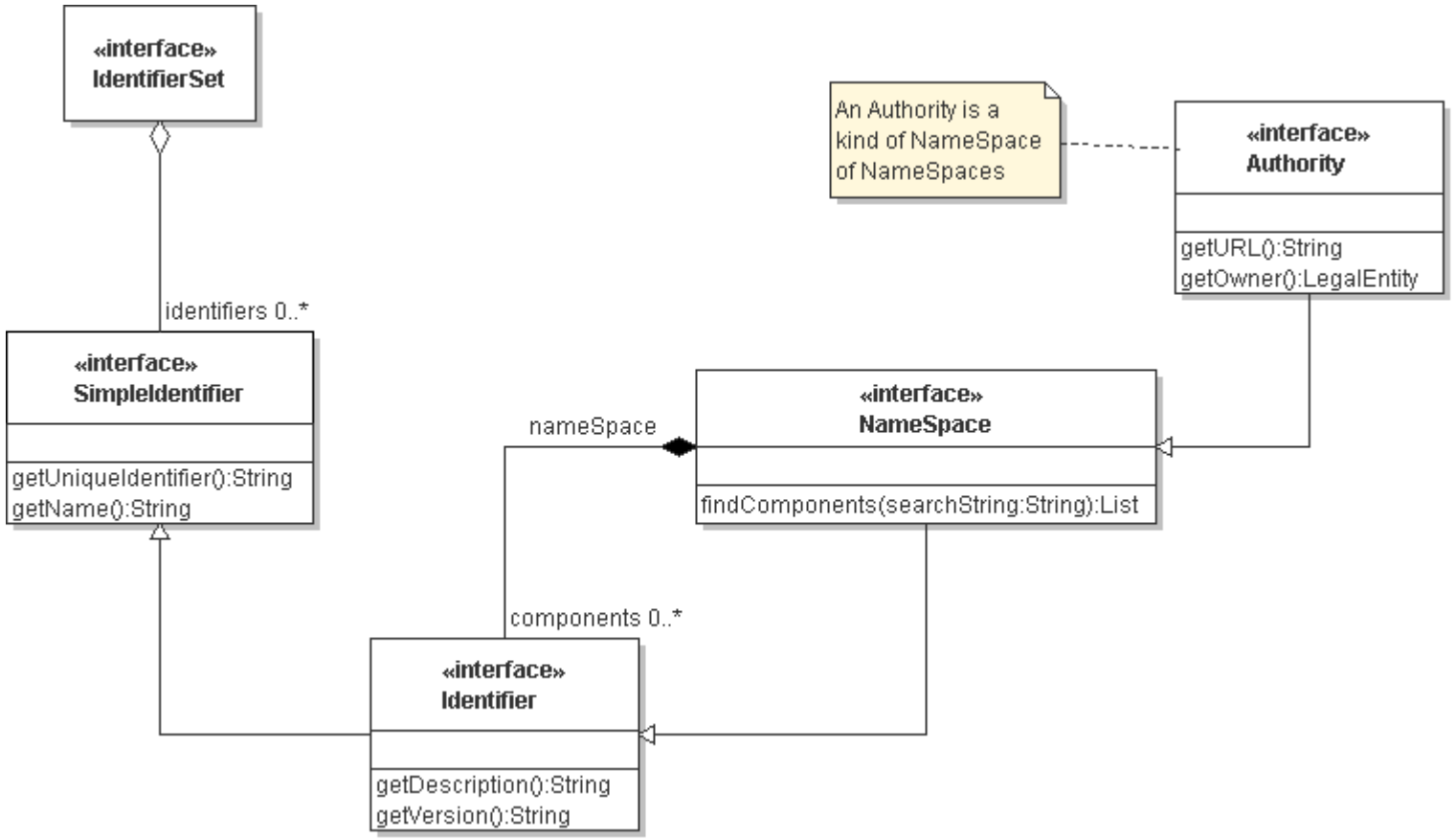
Excerpt of GCP Model (Generic Entity II)



Excerpt of GCP Model (Identification)



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Other Models

- **Core:**
  - Publication, Organization, IP
- **Scientific:**
  - Specific kinds of maps (genetic & location/environment), genomic data (i.e. sequence, microarray)