Факультет ИУ "Информатика и системы управления"

Кафедра ИУ-3 "Информационные системы и телекоммуникации"

Отчет к лабораторной работе №3

по курсу "**Разработка программного обеспечения**"

направления 2304000062

" **Работа с плагинами и Apache Jena**"

Продолжительность 4 часа.

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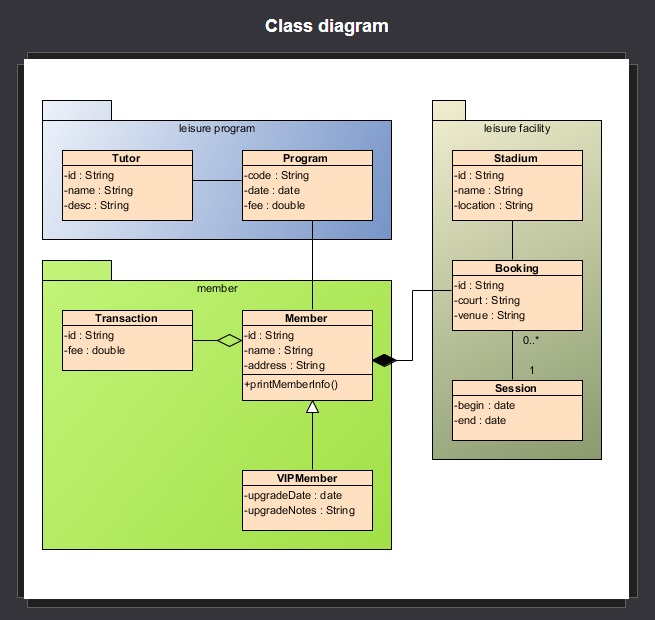
# Цели лабораторной работы

* Углубление навыков работы с системой контроля версий
* Ознакомление на практике с основами графовых БД и технологий Semantic Web

# Задание

Создать тестовый Eclipse-проект, в котором происходит формирование информационной модели данных диаграммы и работа с данными в соответствии со своим вариантом задания и требованиями.

Добавить созданные проект в репозитарий системы контроля версий.



Исходный код программы:

**package** JenaPruebas;

**import** java.io.FileWriter;

**import** java.io.IOException;

**import** com.hp.hpl.jena.ontology.Individual;

**import** com.hp.hpl.jena.ontology.ObjectProperty;

**import** com.hp.hpl.jena.ontology.OntClass;

**import** com.hp.hpl.jena.ontology.OntModel;

**import** com.hp.hpl.jena.rdf.model.ModelFactory;

**import** com.hp.hpl.jena.rdf.model.SimpleSelector;

**import** com.hp.hpl.jena.rdf.model.StmtIterator;

**public** **class** Class\_Diagram {

**static** **final** String *SCHEMA* = "http://www.visual-paradigm.com/VPGallery/diagrams/Class.html";

**static** **final** String *NS* = *SCHEMA* + "#";

**public** **static** **void** main (String[] args) {

OntModel m = ModelFactory.*createOntologyModel*();

OntClass concept = m.createClass(*NS* + "concept");

OntClass relation = m.createClass(*NS* + "relation");

OntClass objectClass = m.createClass(*NS* + "object");

objectClass.addSuperClass(concept);

OntClass associationClass = m.createClass(*NS* + "association");

associationClass.addSuperClass(relation);

OntClass compositionClass = m.createClass(*NS* + "composition");

compositionClass.addSuperClass(relation);

OntClass aggregationClass = m.createClass(*NS* + "aggregation");

aggregationClass.addSuperClass(relation);

OntClass generalizationClass = m.createClass(*NS* + "generalization");

generalizationClass.addSuperClass(relation);

ObjectProperty propAssociationFrom = m.createObjectProperty(*NS* + "associationFrom");

propAssociationFrom.addDomain(objectClass);

propAssociationFrom.addRange(objectClass);

ObjectProperty propAssociationTo = m.createObjectProperty(*NS* + "associationTo");

propAssociationTo.addDomain(objectClass);

propAssociationTo.addRange(objectClass);

ObjectProperty propCompositionFrom = m.createObjectProperty(*NS* + "compositionFrom");

propCompositionFrom.addDomain(objectClass);

propCompositionFrom.addRange(objectClass);

ObjectProperty propCompositionTo = m.createObjectProperty(*NS* + "compositionTo");

propCompositionTo.addDomain(objectClass);

propCompositionTo.addRange(objectClass);

ObjectProperty propAggregationFrom = m.createObjectProperty(*NS* + "aggregationFrom");

propAggregationFrom.addDomain(objectClass);

propAggregationFrom.addRange(objectClass);

ObjectProperty propAggregationTo = m.createObjectProperty(*NS* + "aggregationTo");

propAggregationTo.addDomain(objectClass);

propAggregationTo.addRange(objectClass);

ObjectProperty propGeneralizationFrom = m.createObjectProperty(*NS* + "generalizationFrom");

propGeneralizationFrom.addDomain(objectClass);

propGeneralizationFrom.addRange(objectClass);

ObjectProperty propGeneralizationTo = m.createObjectProperty(*NS* + "generalizationTo");

propGeneralizationTo.addDomain(objectClass);

propGeneralizationTo.addRange(objectClass);

Individual tutor = m.createIndividual(*NS* + "tutor", objectClass);

Individual program = m.createIndividual(*NS* + "program", objectClass);

Individual transaction = m.createIndividual(*NS* + "transaction", objectClass);

Individual member = m.createIndividual(*NS* + "member", objectClass);

Individual vipMember = m.createIndividual(*NS* + "vipMember", objectClass);

Individual stadium = m.createIndividual(*NS* + "stadium", objectClass);

Individual booking = m.createIndividual(*NS* + "booking", objectClass);

Individual session = m.createIndividual(*NS* + "session", objectClass);

Individual linkAssociation1 = m.createIndividual(*NS* + "program", associationClass);

linkAssociation1.addProperty(propAssociationFrom, tutor);

linkAssociation1.addProperty(propAssociationTo, program);

Individual linkAssociation11 = m.createIndividual(*NS* + "tutor", associationClass);

linkAssociation11.addProperty(propAssociationFrom, program);

linkAssociation11.addProperty(propAssociationTo, tutor);

Individual linkAssociation2 = m.createIndividual(*NS* + "member", associationClass);

linkAssociation2.addProperty(propAssociationFrom, program);

linkAssociation2.addProperty(propAssociationTo, member);

Individual linkAssociation22 = m.createIndividual(*NS* + "program", associationClass);

linkAssociation22.addProperty(propAssociationFrom, member);

linkAssociation22.addProperty(propAssociationTo, program);

Individual linkAssociation3 = m.createIndividual(*NS* + "booking", associationClass);

linkAssociation3.addProperty(propAssociationFrom, stadium);

linkAssociation3.addProperty(propAssociationTo, booking);

Individual linkAssociation33 = m.createIndividual(*NS* + "stadium", associationClass);

linkAssociation33.addProperty(propAssociationFrom, booking);

linkAssociation33.addProperty(propAssociationTo, stadium);

Individual linkAssociation4 = m.createIndividual(*NS* + "session", associationClass);

linkAssociation4.addProperty(propAssociationFrom, booking);

linkAssociation4.addProperty(propAssociationTo, session);

Individual linkAssociation44 = m.createIndividual(*NS* + "booking", associationClass);

linkAssociation44.addProperty(propAssociationFrom, session);

linkAssociation44.addProperty(propAssociationTo, booking);

Individual linkComposition = m.createIndividual(*NS* + "member", compositionClass);

linkComposition.addProperty(propCompositionFrom, booking);

linkComposition.addProperty(propCompositionTo, member);

Individual linkAggregation = m.createIndividual(*NS* + "member", aggregationClass);

linkAggregation.addProperty(propAggregationFrom, transaction);

linkAggregation.addProperty(propAggregationTo, member);

Individual linkGeneralization = m.createIndividual(*NS* + "member", generalizationClass);

linkGeneralization.addProperty(propGeneralizationFrom, vipMember);

linkGeneralization.addProperty(propGeneralizationTo, member);

System.*out*.println("\n");

**for**(StmtIterator it = linkAggregation.listProperties(); it.hasNext();)

{

System.*out*.println(it.nextStatement());

}

System.*out*.println("\n");

**for**(StmtIterator it = member.listProperties(); it.hasNext();)

{

System.*out*.println(it.nextStatement());

}

System.*out*.println("\n");

//вывод всего и всех где есть класс passCheck (goal) для всей модели

OntClass c = tutor.getOntClass();

SimpleSelector s = **new** SimpleSelector(**null**, **null**, c);

**for**(StmtIterator it = m.listStatements(s); it.hasNext();)

{

System.*out*.println(it.nextStatement());

}

**try** {

m.write(**new** FileWriter("mm.owl"));

} **catch** (IOException e){

e.printStackTrace();

}

}

}

Результаты запросов:

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregation]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#associationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalizationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#compositionFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#booking]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalizationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#vipMember]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#composition]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#associationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#program]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#compositionTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#object]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#transaction]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalization]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#relation]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.w3.org/2000/01/rdf-schema#Resource]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#concept]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregation]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#associationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalizationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#compositionFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#booking]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregationTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalizationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#vipMember]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#composition]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#associationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#program]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#compositionTo, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#object]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#aggregationFrom, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#transaction]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#generalization]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#relation]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.w3.org/2000/01/rdf-schema#Resource]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#concept]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#session, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#stadium, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#booking, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#member, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#tutor, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#program, http://www.w3.org/1999/02/22-rdf-syntax-ns#type, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

[http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association, http://www.w3.org/2000/01/rdf-schema#subClassOf, http://www.visual-paradigm.com/VPGallery/diagrams/Class.html#association]

Результаты в Protege:

