Photo Tagging

A swinging adventure in metadata

AIMS: Australia's tropical marine research agency.

PROJECT

- Client

AIMS DATA CENTRE

- End User

Australian Government
Australian Institute of Marine Science

TEAM

- Project Manager
  - Steven Vandervalk
- Team Members
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  - Andrew Moore

overview

AIMS has a photo tagging tool using Java Swing

- It uses keywords, locations and taxonomy data that comes from various databases
- We want to get the information from local files rather than databases
- This will remove a dependency on a JBOSS server and simplify the application

ORIGINAL APP

Making new friends

- Version control and development environment
  - GitHub https://github.com/stevenvandervalk/
  - intelliJ IDEA http://www.jetbrains.com/idea/
- JPA - managing relational data
- Created Keywords, Location and Taxon Entities and used them to construct bin files

Australian Government

Australian Institute of Marine Science

ENTITIes

```
@Entity
@Table (name =
"CREEFS_ORDERS")
public class OrdersEntity implements
Serializable{
    private String OrdersId;
    @Id
    @Column(name = "ORDERS_ID")
    public String getOrdersId() {
        return OrdersId;
    }
    private String orders;
    @Basic
    @Column(name = "ORDERS")
    public String getOrders() {
        return orders;
    }
```

```
private ClazzEntity clazzByClazzID;
@ManyToOne
@JoinColumn(name = "CLASS_ID",
referencedColumnName = "CLASS_ID")
    public ClazzEntity getClazzByClazzID() {
        return clazzByClazzID;
    }

private List<FamilyEntity> familyByOrdersID;
@OneToMany(mappedBy = "ordersByOrdersID",
fetch=FetchType.LAZY)
    public List<FamilyEntity> getfamilyByOrdersID() {
        return familyByOrdersID;
    }
}
```

ENTITIes

```
private static final String PERSISTENCE_UNIT_NAME = "REEF-DERBY";
private static EntityManagerFactory factory;

public static void main(String[] args) {
factory = Persistence.createEntityManagerFactory(PERSISTENCE_UNIT_NAME);
EntityManager em = factory.createEntityManager();

Query q = em.createQuery("SELECT t FROM OrdersEntity t");
List<OrdersEntity> taxons = q.getResultList();
    for (OrdersEntity taxon : taxons){
        System.out.println(taxon.getOrdersId());
        System.out.println("     " + taxon.getOrders());
        System.out.println("     " + taxon.getClazzByClazzID().getClazz() + "\n");
    }
}
```

Method call for Class Entity from Orders Entity

Class Entity Method

The Catalogue of Life

- Read taxonomic data from Catalogue of Life
- Created bin files for Echinodermata (Starfish) and Decapoda (Crabs, Lobsters and all things delicious)
- Bundled bin files with GUI to populate the keyword tree

Everyone loves Deployment

- Updated ANT build configuration to bundle CoL data
- ANT build JAR and WAR files
- Create test Tomcat server and deploy java executables successfully

A Date with Web Services

- Tried Resting framework to fetch taxonomic data from CoL web service
  - http://code.google.com/p/resting/
- Instead used fewer dependency JDOM api to fetch and map xml data from java code
  - http://www.jdom.org/
- Added live search (search by keystroke) to GUI

webservice

- Example Catalogue of Life Entry
  http://www.catalogueoflife.org/col/webservice?name=Decapoda&response=full

```
<result>
  <id>11936796</id>
  <name>Decapoda</name>
  <rank>Order</rank>
  <name_status>accepted name</name_status>
  <name_html>Decapoda</name_html>
  <classification>
    <taxon>
      <id>11935941</id>
      <name>Animalia</name>
      <rank>Kingdom</rank>
      <name_html>Animalia</name_html>
    </taxon>
```

JDOM

```
String url = "http://www.catalogueoflife.org/annual-checklist/2012/webservice?id=" + name
+         "&response=full";

      SAXBuilder builder = new SAXBuilder();
      Document doc;

      TaxonEntity temptaxa = new TaxonEntity();
      try {
         doc = builder.build(url);     temptaxa.setTaxa(doc.getRootElement().getChild
("result").getChildText("name"));

temptaxa.setTaxaLevel(doc.getRootElement().getChild("result").getChildText("rank"));
```

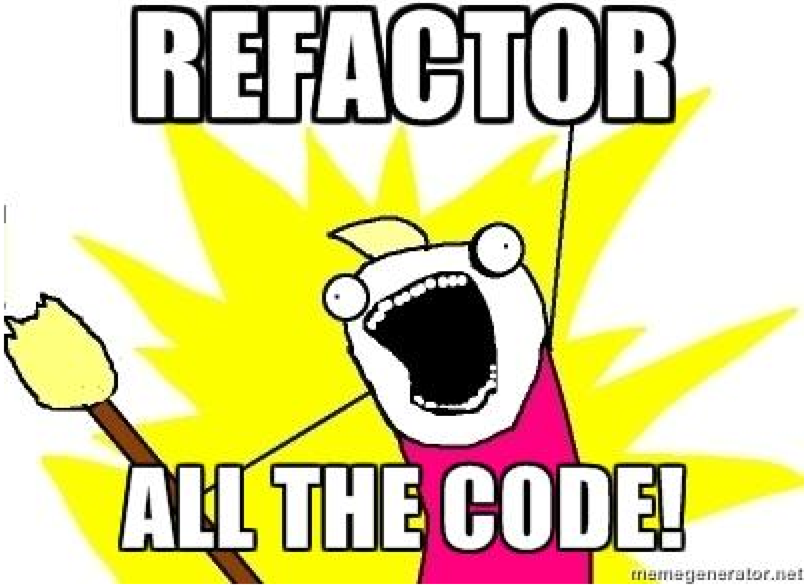
Simple API for XML

Element or 'tag' identifiers

Active search

```
public void removeUpdate(DocumentEvent ev) {
        collapseNode();
        String search = tfSearch.getText();
        expandNode(search);
        }
public void changedUpdate(DocumentEvent ev) {
        collapseNode();
        String search = tfSearch.getText();
        expandNode(search);
        }
~
public void collapseNode(){
        for (int i = trKeywords.getRowCount( )- 1; i > 0; i--)  {
        trKeywords.collapseRow(i);
}
```

Week Four



Frequently run into obstacles

- Q : Persistence.xml and provider failures
  A : Know your classpath - and never, I say never, use absolute paths

- Q : Could not read serialized entities
  A : Use *exact* same entity to serialize *in and out*

- Q : C o L sqlite db doesn't contain all life
  A : Use up to date web services api

- Q : Near-duplicate taxon entities
  A : Filter on keyword tree builder method

IMPROVED APP

Feedback

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