House Keeping

- 201 – Interacting with Relational Databases
  - Tuesday 11:00 am – 12:30 pm
  - Chris Judd
- 501 – Developing Enterprise JavaBeans with J2EE Standard Tools
  - Wednesday 9:15 am – 10:45 am
  - Chris Judd
- 701 - Building with the Data Tools Project
  - Wednesday 2:00 pm – 3:30 pm
  - Der-Ping Chou and John Graham

House Keeping

- 204 – Developing Web Services with Eclipse
  - Tuesday 11:00 am – 12:30 pm
  - Arthur Ryman
- 404 – Developing Web Services with the Web Tools Platform
  - Tuesday 3:30 pm – 5:00 pm
  - David Gallardo
- 502 – 602 – Web Application Development with Web Tools Platform
  - Wednesday 9:15 am – 10:45 am & 11:00 am – 12:30 pm
  - Tim Wagner
Agenda

- WTP Overview
  - Web Services Overview
  - Producing Web Services (bottom up)
- Testing
- Consuming
- Conclusion

Web Tools Platform Project (WTP)

- Top Level Eclipse Project
  - www.eclipse.com/webtools/
- Development tools for web development
  - No runtime dependencies
  - Vendor extensible
- Subprojects
  - Web Standard Tools (WST)
  - J2EE Standard Tools (JST)
- Version 0.7 was released August 2, 2005.
- Dependencies
  - Eclipse 3.1
  - Eclipse Modeling Framework (EMF) 2.1.0
  - Graphic Editor Framework (GEF) 3.1
  - Java EMF Model (JEM) 1.1
WTP Subprojects

- **Web Standard Tools (WST)**
  - Web artifacts
  - Defined by open standards bodies
- **J2EE Standard Tools (JST)**
  - J2EE components
  - Java Community Process (JSP)
  - Depends on WST
- **Java Server Faces Tools (JSF)**
WTP Web Services Scope

- World Wide Web Consortium (W3C)
  - http://www.w3.org
  - HTML, XHTML, CSS, XML, XSLT, XML Schema, XML Query
- Organizations for Advancement of Structured Information Standards (OASIS)
  - http://www.oasis-open.org
  - e-Business standards for web services
- Web Services Interoperability Organizations (WS-I)
  - http://www.ws-i.org
  - Interoperable message exchange between web services
- Java Community Process (JCP)
  - http://www.jcp.org
  - Java Web Services APIs

WTP Installation Options

- All-in-one
  - Eclipse 3.1
  - Eclipse Modeling Framework (EMF) 2.1.0
  - Graphic Editor Framework (GEF) 3.1
  - Java EMF Model (JEM) 1.1
- Update Manager
  - Eclipse.org update site
- Piecemeal
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Simple Object Access Protocol

From the draft W3C specification:

SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined datatypes, and a convention for representing remote procedure calls and responses.

[http://www.w3.org/TR/soap/](http://www.w3.org/TR/soap/)
WSDL

• Web Service Definition Language
• Describes
  - What the service can do
  - Where it resides
  - How to invoke it
• Elements
  - Types – data type definition
  - Message – definition of data being communicated
  - Port Type – abstract set of operations
  - Binding – concrete protocol and data format
  - Service – collection of related endpoints
  - Port – binding and a network address

Apache Axis

• Apache Web Services Project
• Open Source
• SOAP implementation
• Version 1.2.1
• http://ws.apache.org/axis/
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Producing Web Services

- Bottom up
  - Start with Java code
  - Generate WSDL
- Top down
  - Start with WSDL
  - Generate Java code
Bottom Up Steps

1. Create Dynamic Web Project
2. Create JavaBeans
3. Create Service
4. Generate Web Service

Create Dynamic Web Project

- File > New > Other > Dynamic Web Project
Create JavaBeans

- **Data Transfer Objects**
  - Purchase Order
  - LineItem
  - Address

```
public class Order {

    private static final float DISCOUNT = 0.9f;

    public float quote(float price, int quantity) {
        if (quantity > 100) {
            price = price * DISCOUNT;
        }
        return price * quantity;
    }
}
```
Generate Web Service

- New > File > Other > Web Services > Web Service
- Right click > Web Services > Create Web Services
Generate Web Service

Generate Web Service
Generate Web Service

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Test Client

- [link]

TCP/IP Monitoring

- View SOAP request and response
Web Service Explorer Testing

• Test any Web Services

WSDL Editor

• Graphically edit WSDL
Agenda

- WTP Overview
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Consuming steps

1. Create Java Project
2. Generate Web Service Client
Create Project

- File > New > Project > Java Project

Generate Web Service Client

- File > New > Other > Web Services > Web Service Client
public static void main(String[] args) throws RemoteException {
    OrderProxy proxy = new OrderProxy();
    float quote = proxy.quote(5,5);
    System.out.println("Quote is " + quote);
    System.out.println("\nDONE");
}
WTP Resources

- [www.eclipse.org/webtools/](http://www.eclipse.org/webtools/)
- [www.projst.com](http://www.projst.com)
- Tutorials
  - [http://www.eclipse.org/webtools/community/communityresources.html#tutorials](http://www.eclipse.org/webtools/community/communityresources.html#tutorials)
- Articles
  - [http://www.eclipse.org/webtools/community/communityresources.html#articles](http://www.eclipse.org/webtools/community/communityresources.html#articles)
- New Group
  - [news://news.eclipse.org/eclipse.webtools](news://news.eclipse.org/eclipse.webtools)

Contact Information

- [http://www.juddsolutions.com](http://www.juddsolutions.com)
- cjudd@juddsolutions.com
- Blog
- Pro Eclipse JST
  - [http://www.projst.com](http://www.projst.com)
- Enterprise Java Development on a Budget
Questions?

Please fill out your evaluations.