GraphDB Web App

Clemens Lee, Chris Martin, Taylor Ellis

Project Overview

Using the graph database Neo4j alongside APEX and a RESTful service (written in PHP), we implemented a service to allow users to view and share free events with other users.

url: https://apex.oracle.com/pls/apex/f?p=77063:1

Specifications

- Based on a user’s liked categories, events will be recommended to them that contain those tags
- Users -
  - can follow other users, and see events those users are planning to attend
  - can create new events, which will be visible to all other users
  - have a dynamically created dashboard that is populated with data from the database
  - can search within the application for users and events, and view the pages for them

Graph database -- Neo4j

- Graph database - everything represented as node or link between nodes
- Ability to better represent the complex relationships between nodes.

Database Comparison

Graph - Neo4j

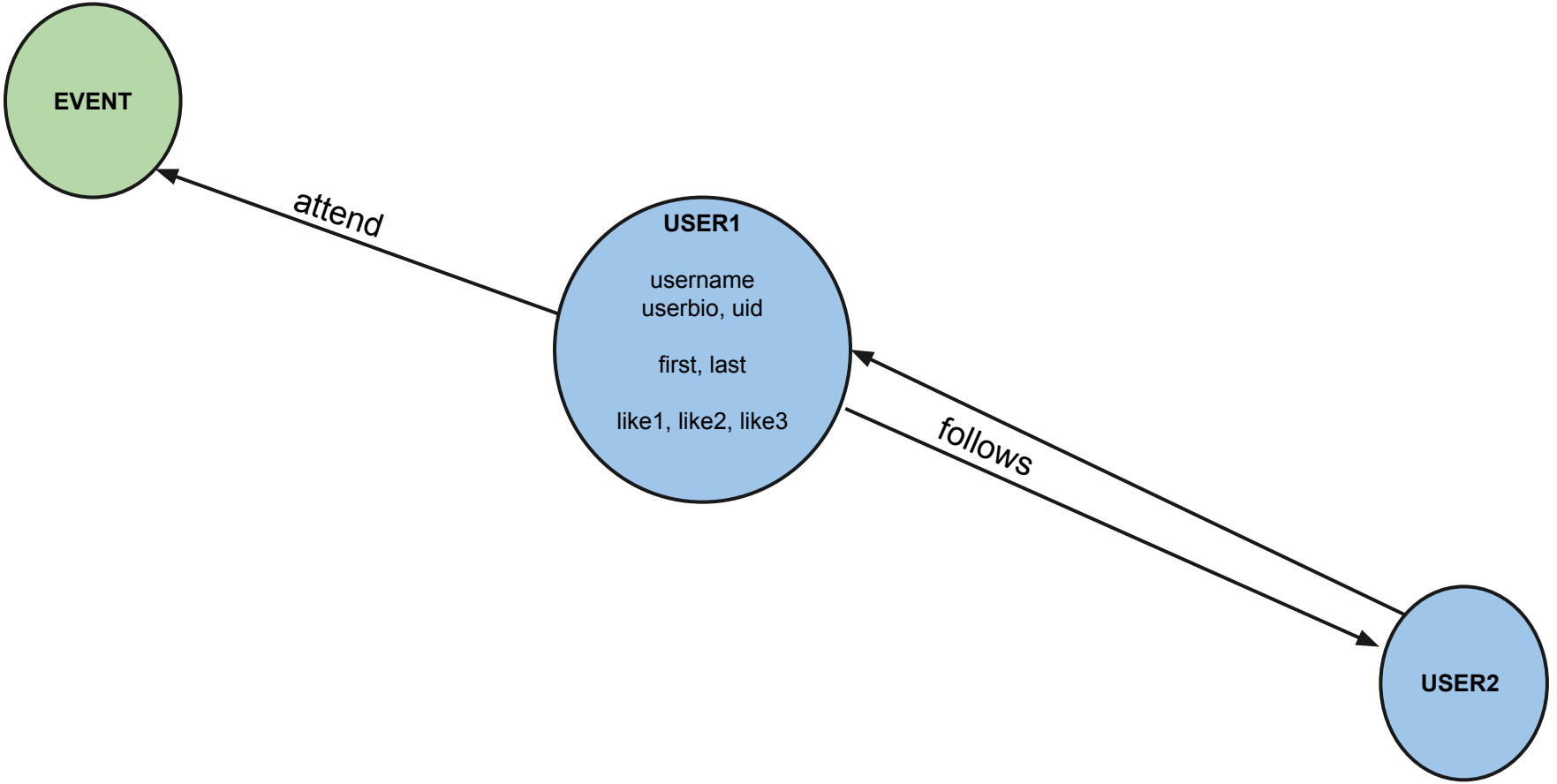
- Relationships are built into the database, same quality as nodes
- Data remains represented in real-world style
- Node labels
- Single Node
- Node Properties
- Queries using Cypher

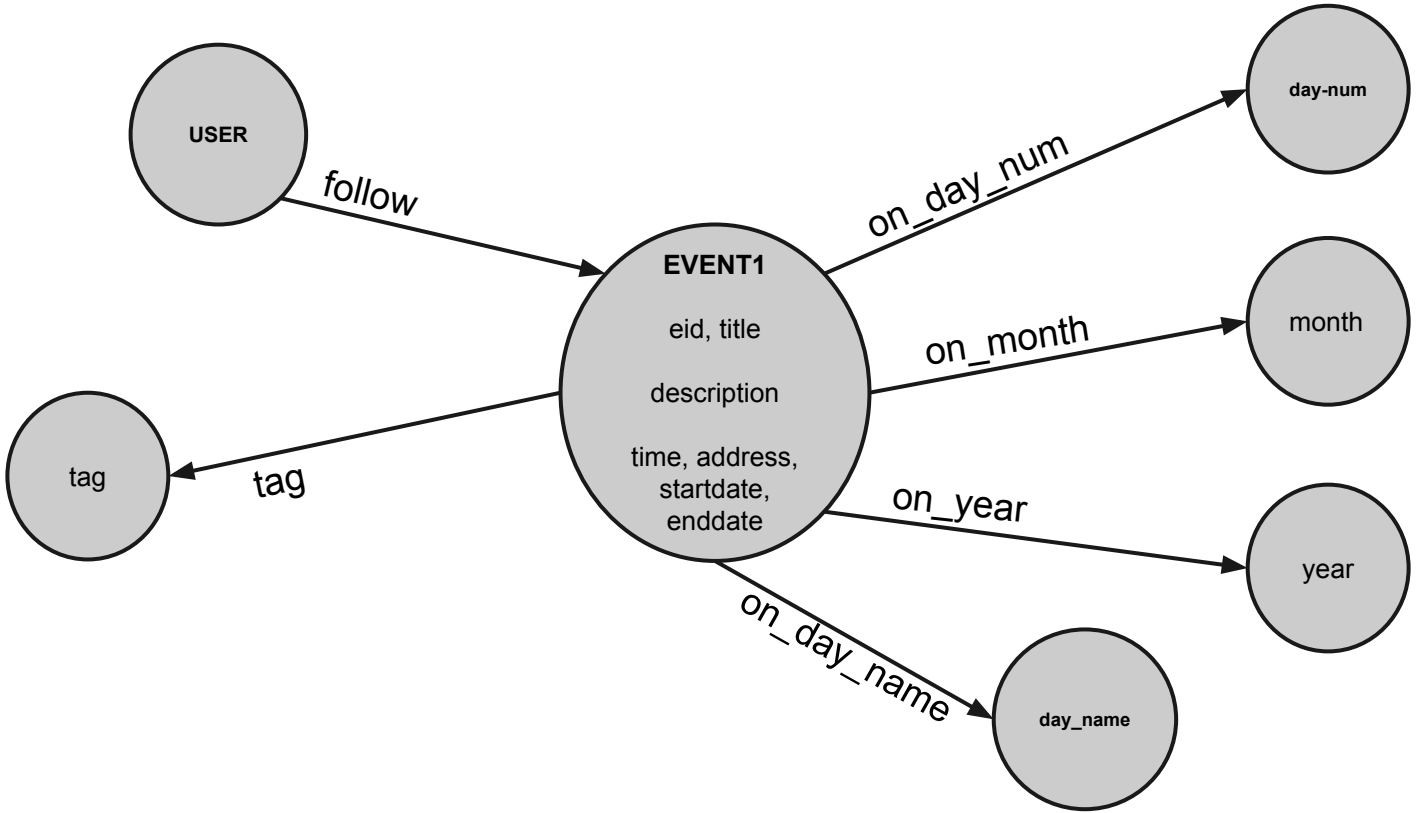
Relational - Oracle

- Implied relationships (through foreign keys, etc.)
- Data has to be abstracted to a large degree
- Entity Table
- Row in the Table
- Column in the Table
- Queries using SQL

Neo4j Specifics

- Neo4j
  - node-property database
  - edges AND nodes can have properties
- Most Other Graph DBs
  - RDF database
  - only nodes have properties, edges are just connections


EVENT
attend
USER1
username
userbio, uid
first, last
like1, like2, like3
follows
USER2


USER
follow
EVENT1
eid, title
description
time, address,
startdate,
enddate
tag
tag
on_day_num
day-num
on_month
month
on_year
year
on_day_name
day_name

Cypher Example

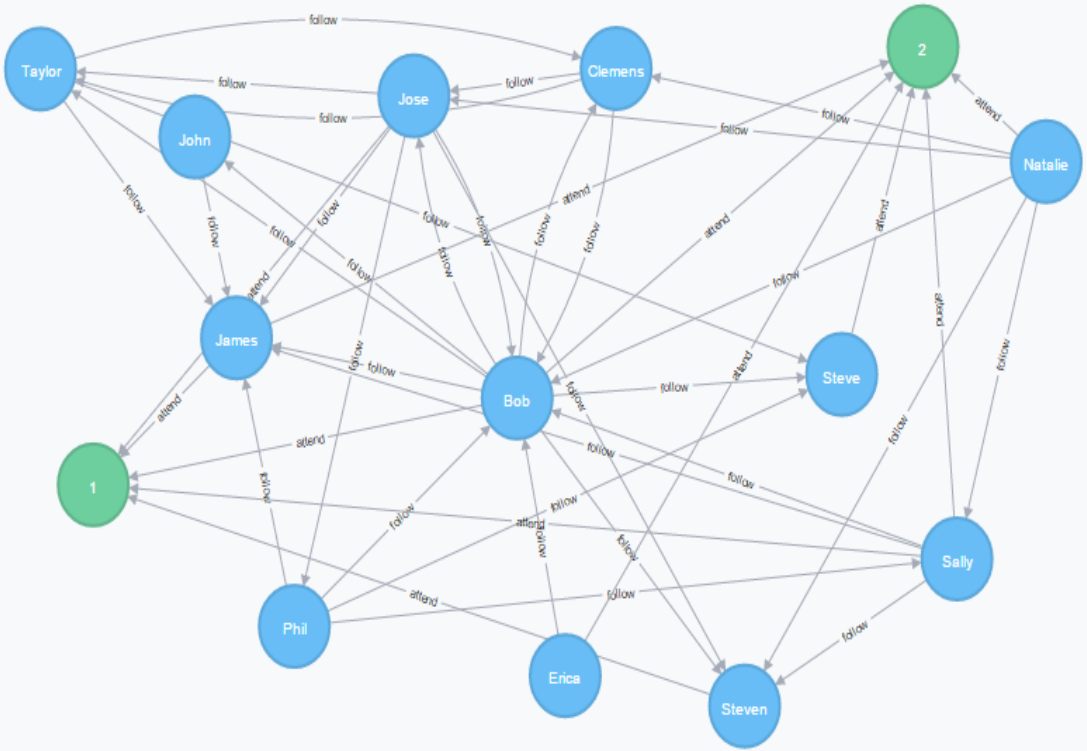
```
match (n {username: "pcannata"})-[]->(m)
set n.last = "Cannata"
return n, m
```

This query finds the node with the username “pcannata,” sets the *last* property of that node to “Cannata”, then returns that node, as well as all edges and nodes directly connected to it.

$ MATCH (n:user{username:'bbuilder'})-[]-(m) RETURN m,n LIMIT 25

*(14) event(2) user(12)

*(43) attend(11) follow(32)



Displaying 14 nodes, 43 relationships (completed with 43 additional relationships).

AUTO-COMPLETE ON

RESTful Service Intro

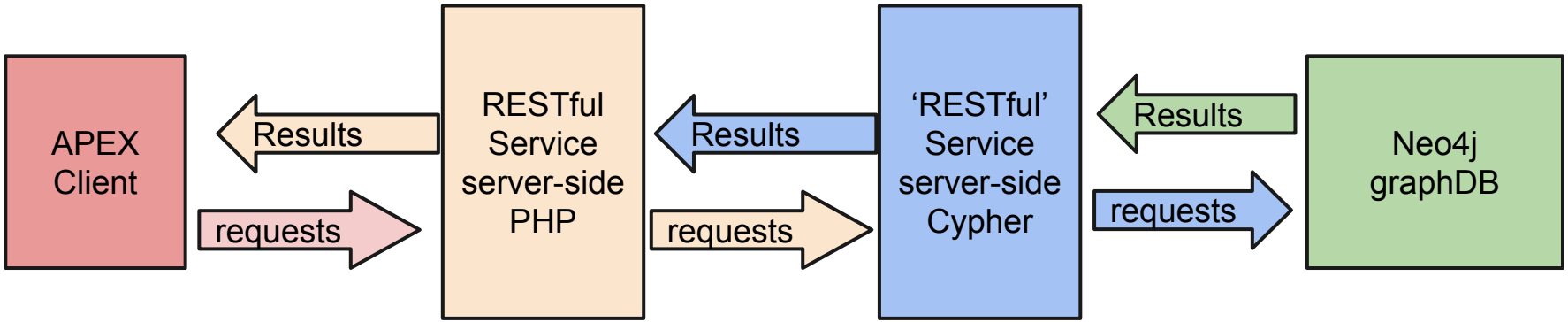
Representational State Transfer

- software architecture style to allow for scalable, distributed, maintainable web system
- GET, POST, PUT, DELETE, etc…
- web browser communication with server

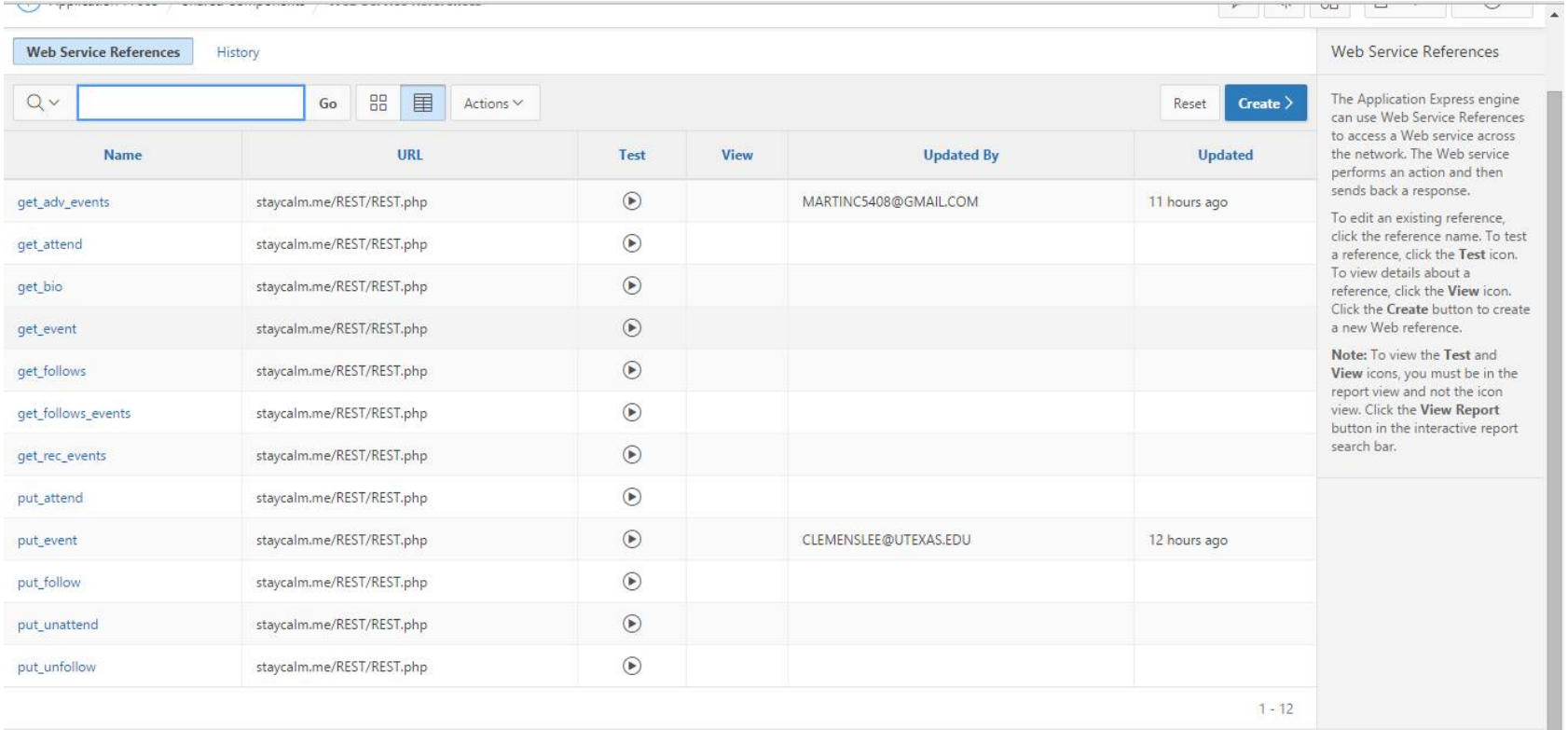
Our RESTful Service

- PHP RESTful service built on top of Neo4j ‘RESTful’
  - cleaner calls from APEX
  - cleaner results
  - conform to RESTful guidelines

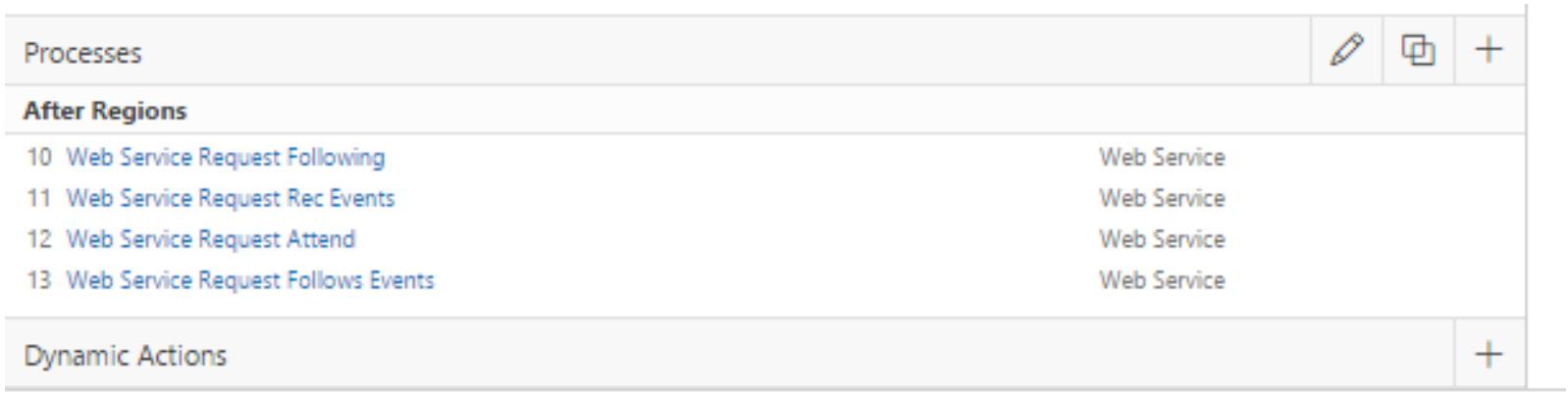
RESTful Communication



Web Services Shared Components



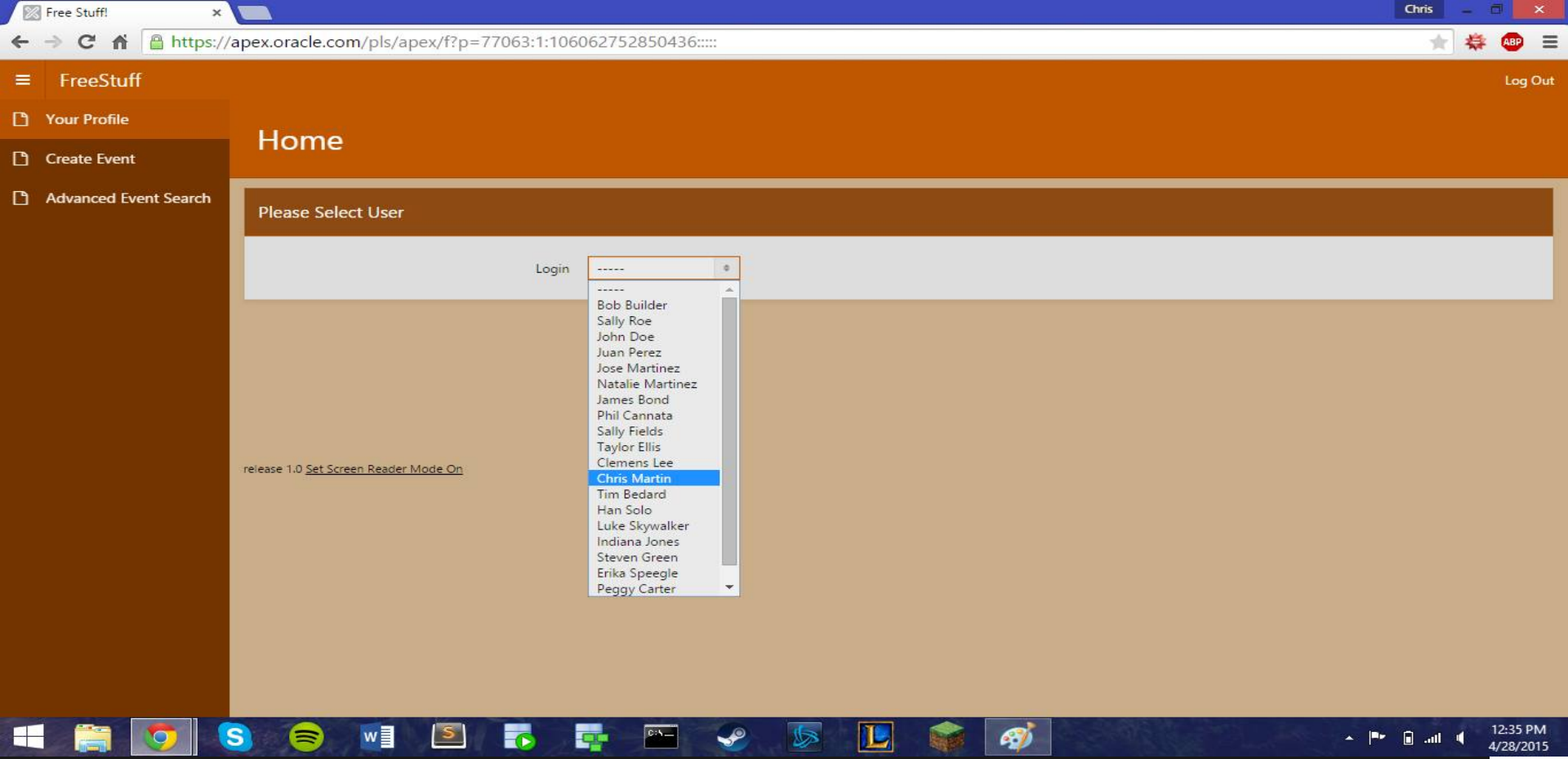
Web Service Processes



Web Service Processes

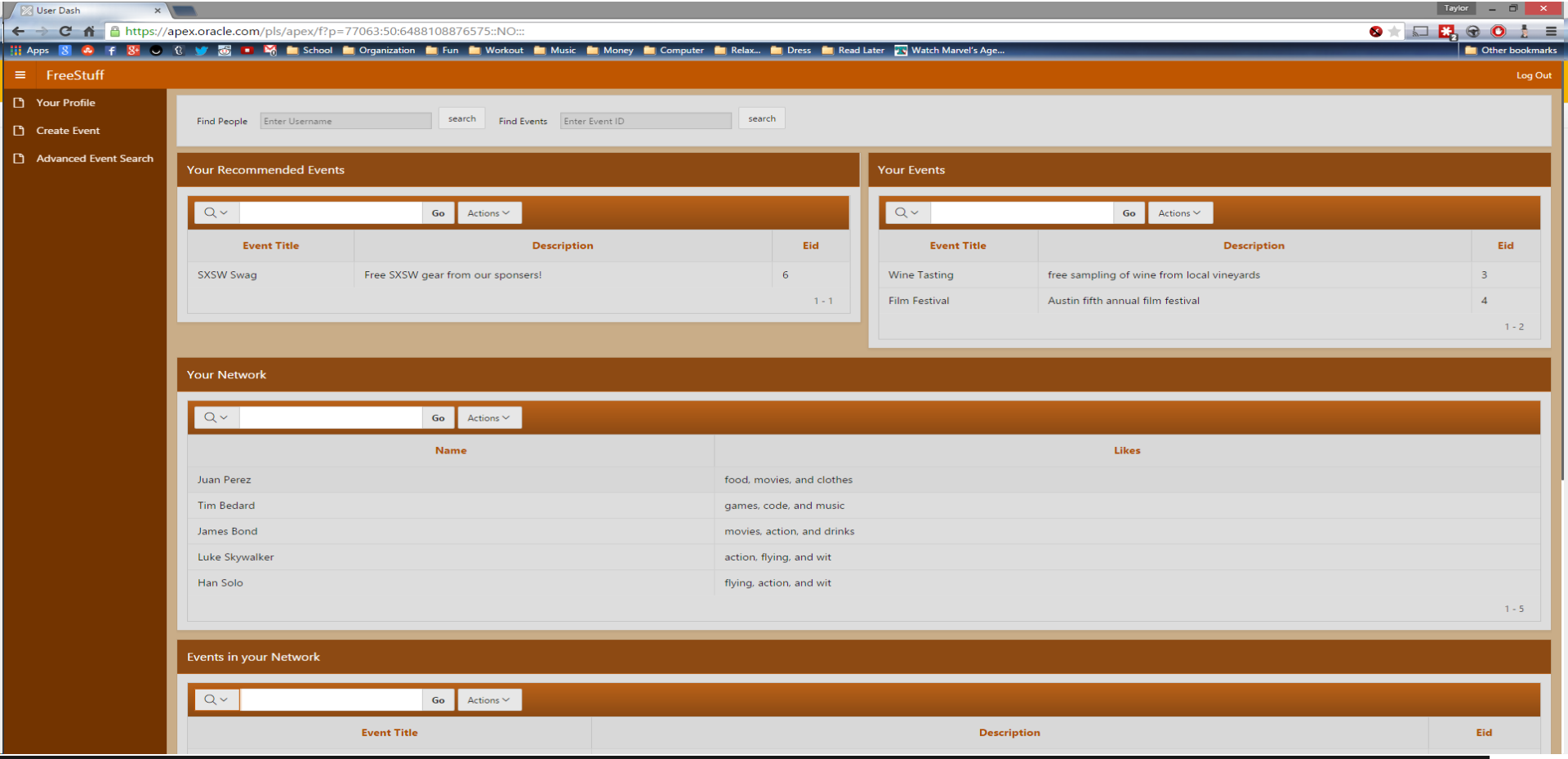
```
select title as "Event Title", description, eid
from xmltable (
        '/json/row'
        passing apex_json.to_xmltype((select clob001 from apex_collections
where collection_name = 'P50_DOREST_RESULTS_REC_EVENTS'))
        columns
           title varchar(255) path '/row/title',
           description varchar(4000) path '/row/description',
           eid varchar(255) path '/row/eid');
```

Preview Slides

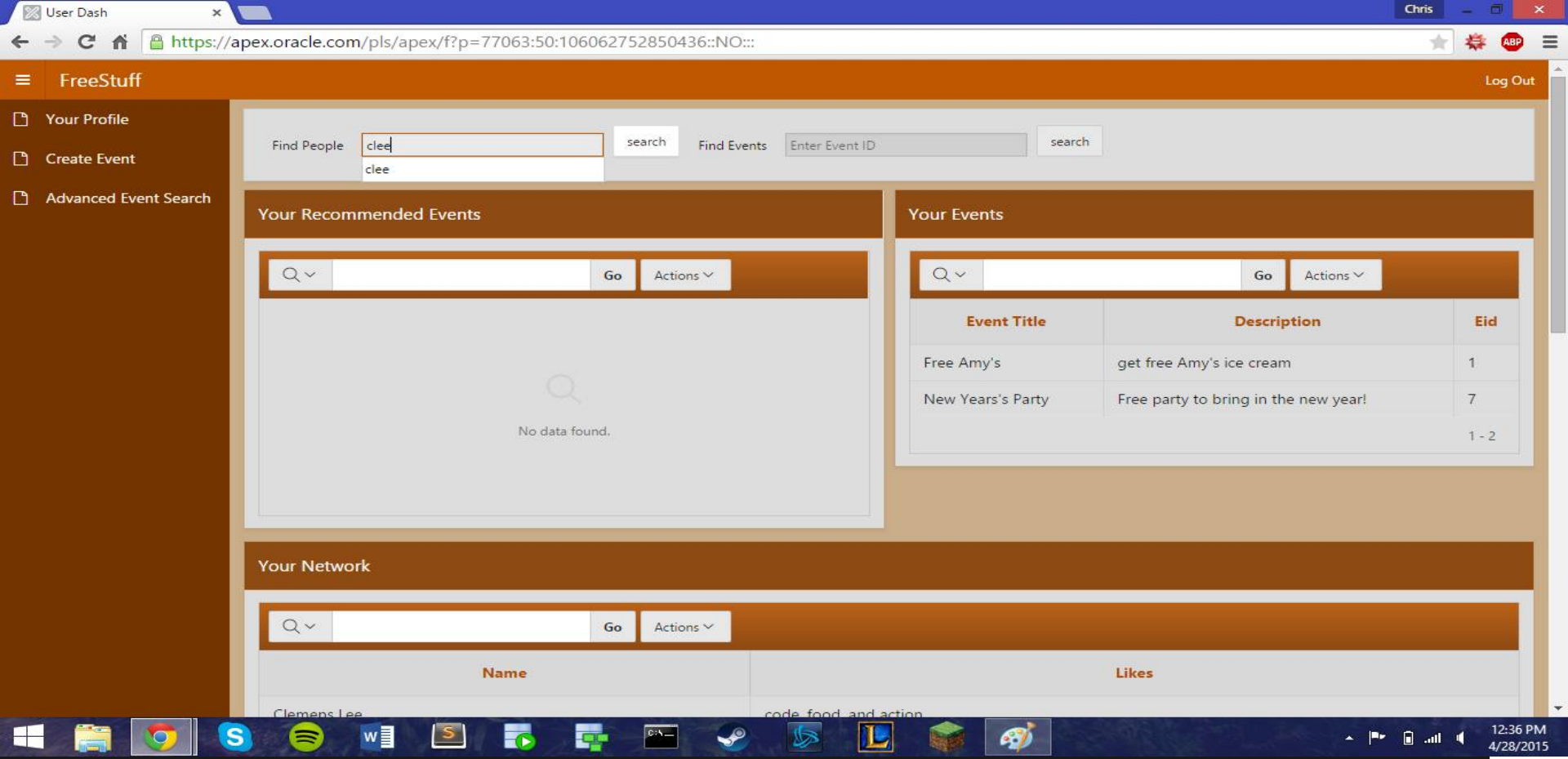

Free Stuff!
Chris
https://apex.oracle.com/pls/apex/f?p=77063:1:106062752850436:::::
FreeStuff
Log Out
Your Profile
Create Event
Advanced Event Search
Home
Please Select User
Login

Bob Builder
Sally Roe
John Doe
Juan Perez
Jose Martinez
Natalie Martinez
James Bond
Phil Cannata
Sally Fields
Taylor Ellis
Clemens Lee
Chris Martin
Tim Bedard
Han Solo
Luke Skywalker
Indiana Jones
Steven Green
Erika Speegle
Peggy Carter
release 1.0 Set Screen Reader Mode On
12:35 PM
4/28/2015

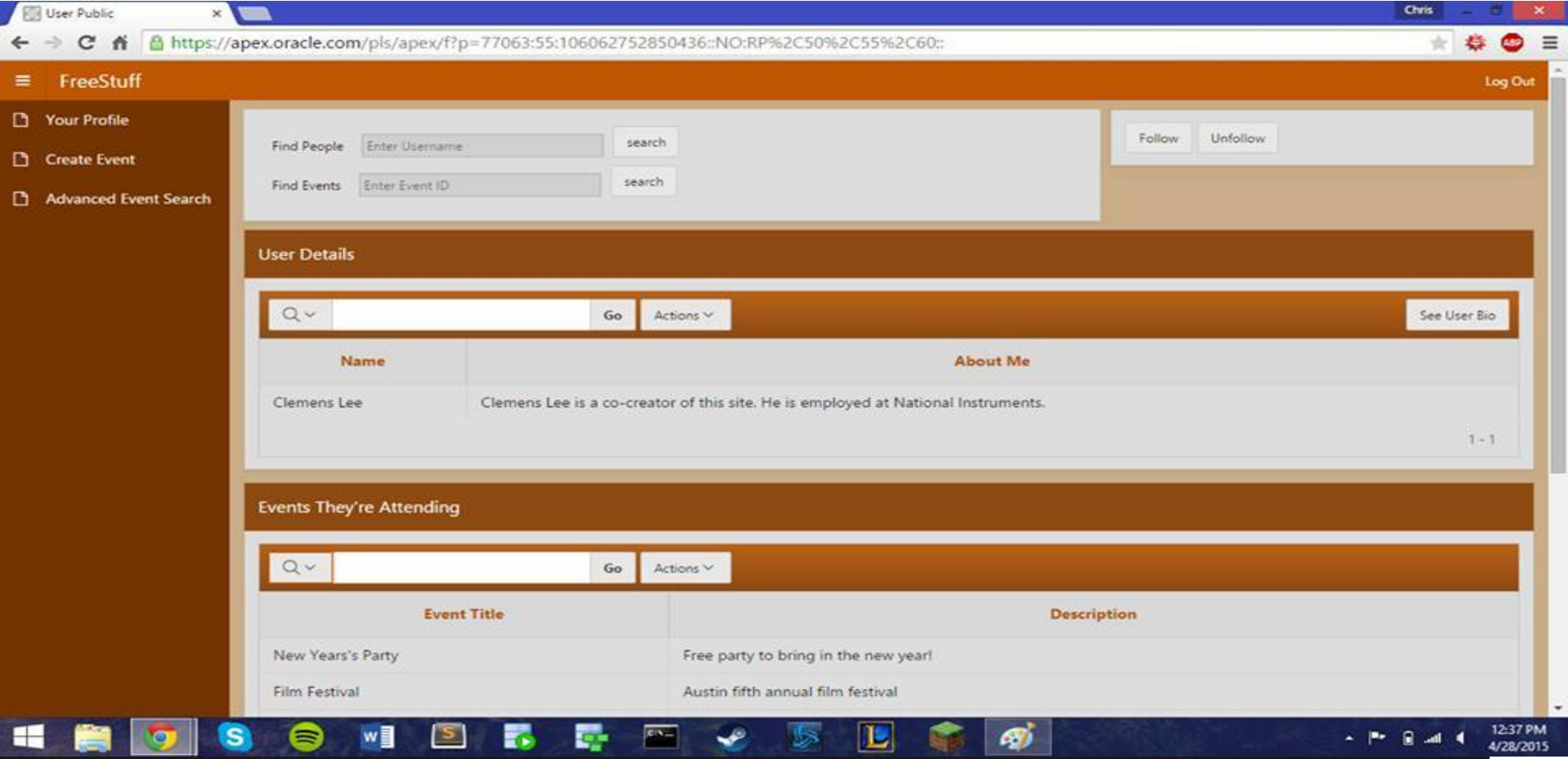
Main Menu



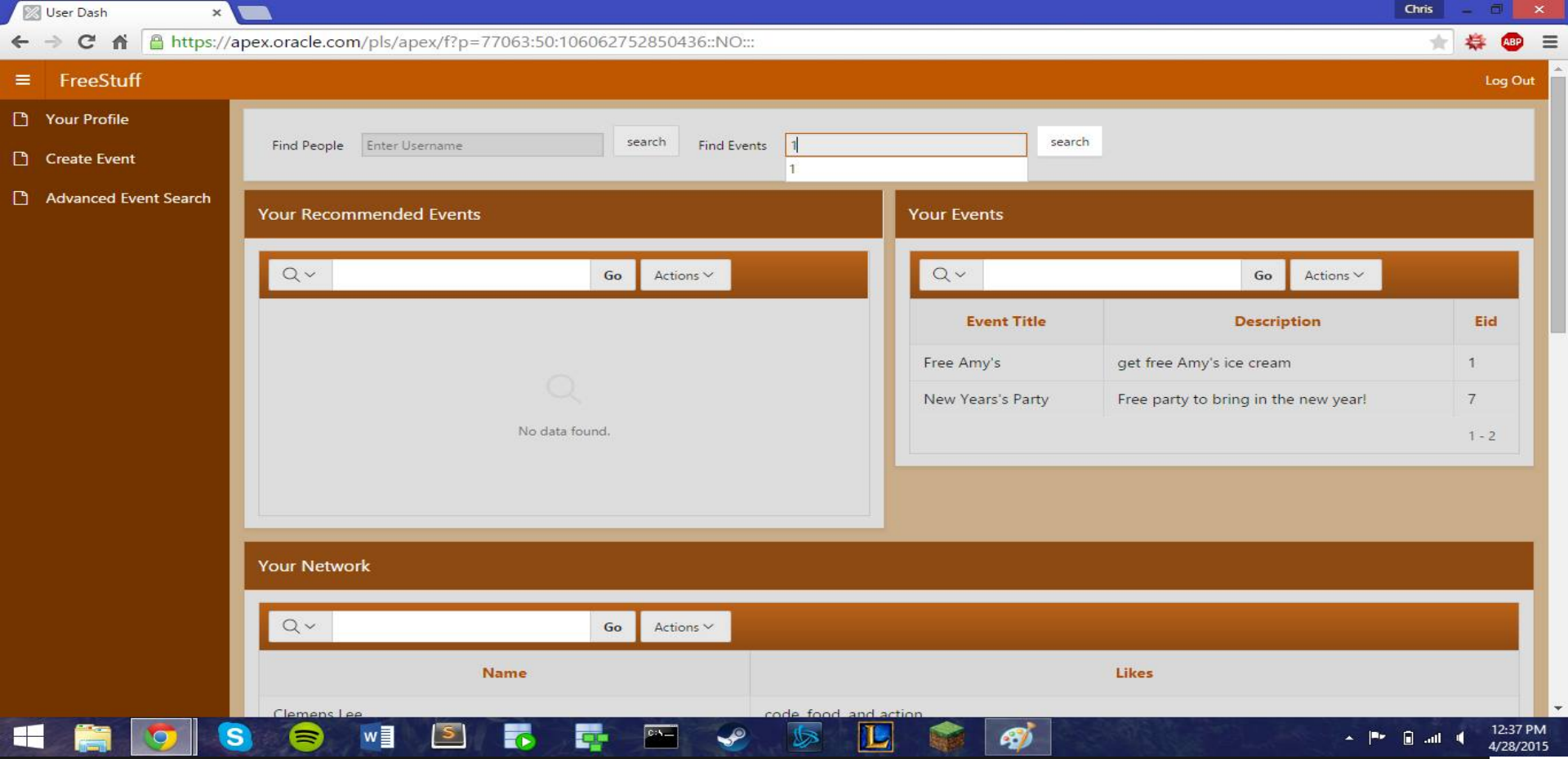
User Dashboard -



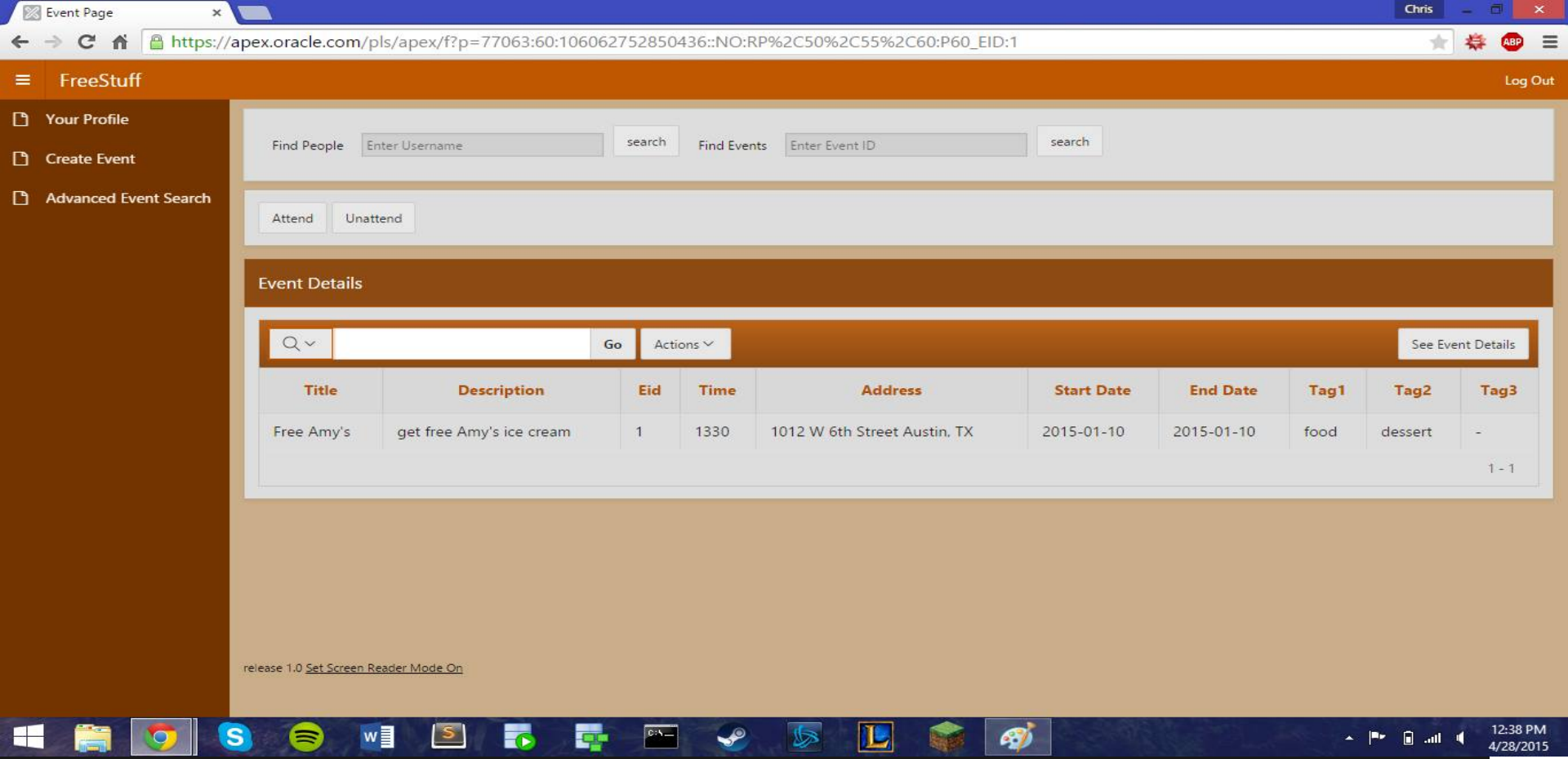
People Search



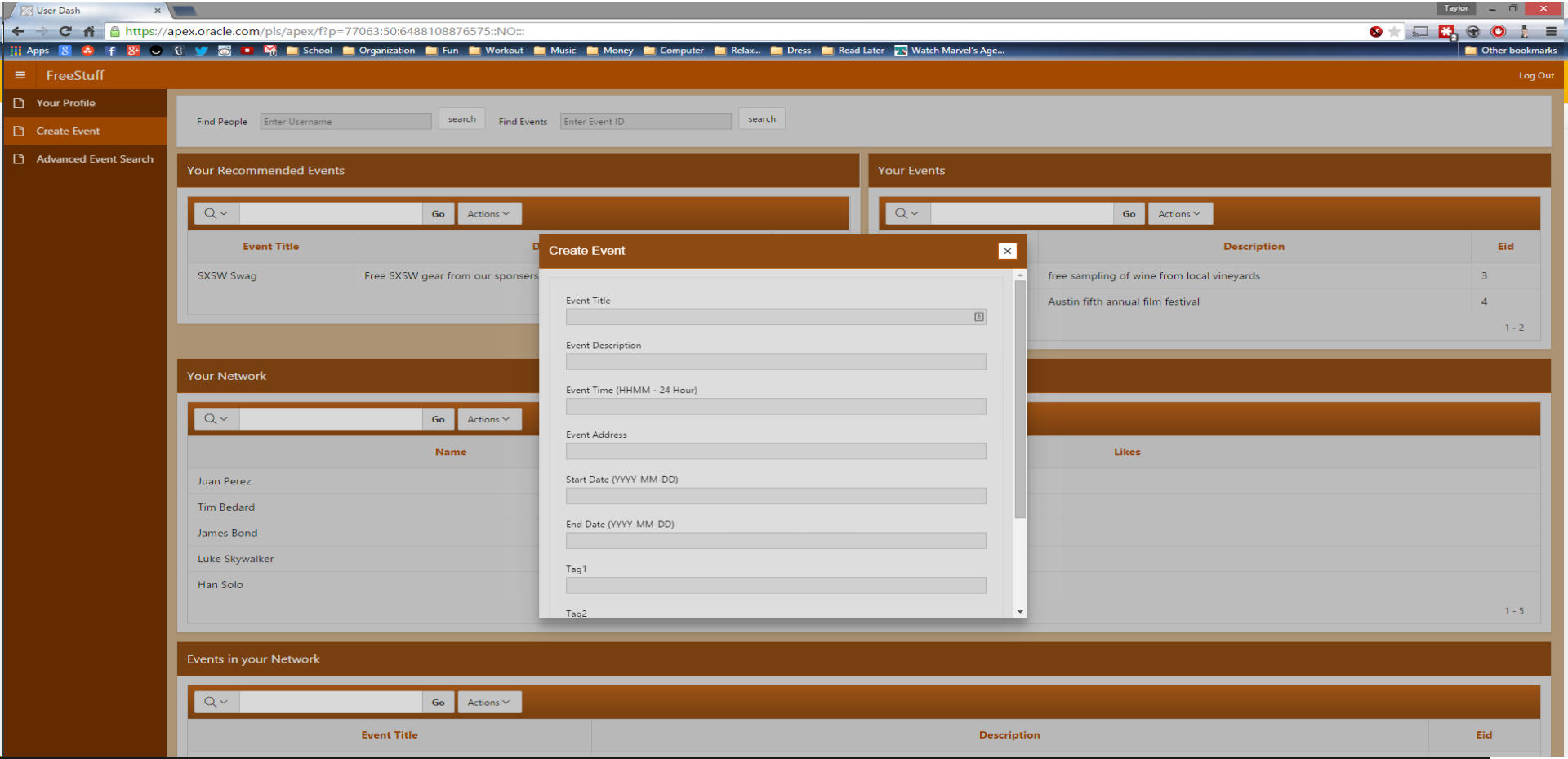
Public Profile



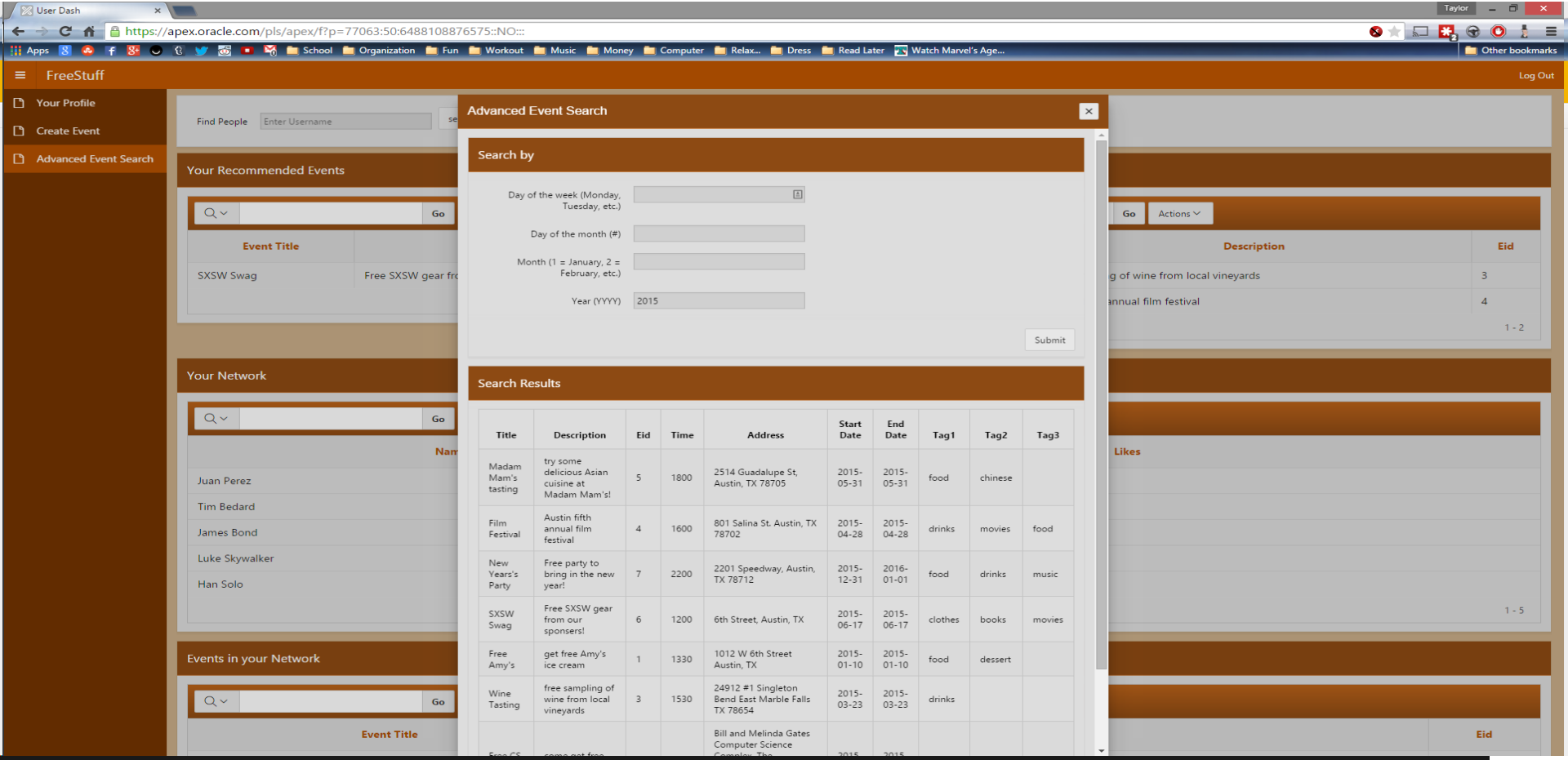
Event Search


Event Page
Chris
https://apex.oracle.com/pls/apex/f?p=77063:60:106062752850436::NO:RP%2C50%2C55%2C60:P60_EID:1
FreeStuff
Log Out
Your Profile
Create Event
Advanced Event Search
Find People
Enter Username
search
Find Events
Enter Event ID
search
Attend
Unattend
Event Details
Go
Actions
See Event Details
Title
Description
Eid
Time
Address
Start Date
End Date
Tag1
Tag2
Tag3
Free Amy's
get free Amy's ice cream
1
1330
1012 W 6th Street Austin, TX
2015-01-10
2015-01-10
food
dessert
-
1 - 1
release 1.0 Set Screen Reader Mode On
12:38 PM
4/28/2015

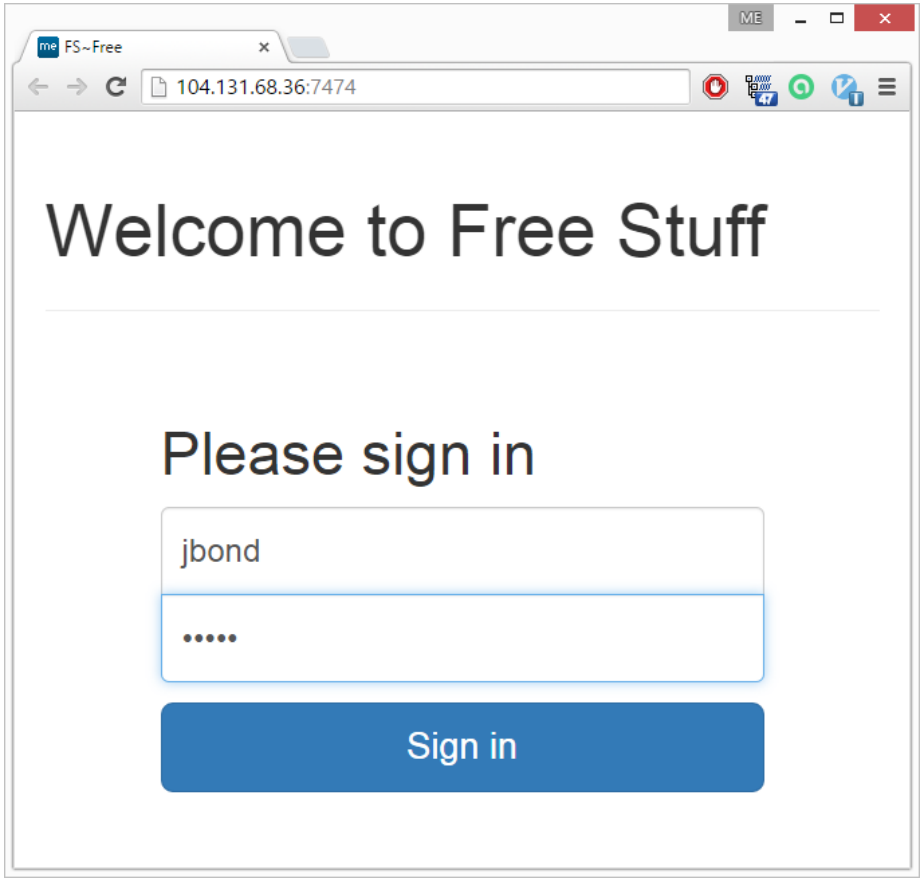
Event Page



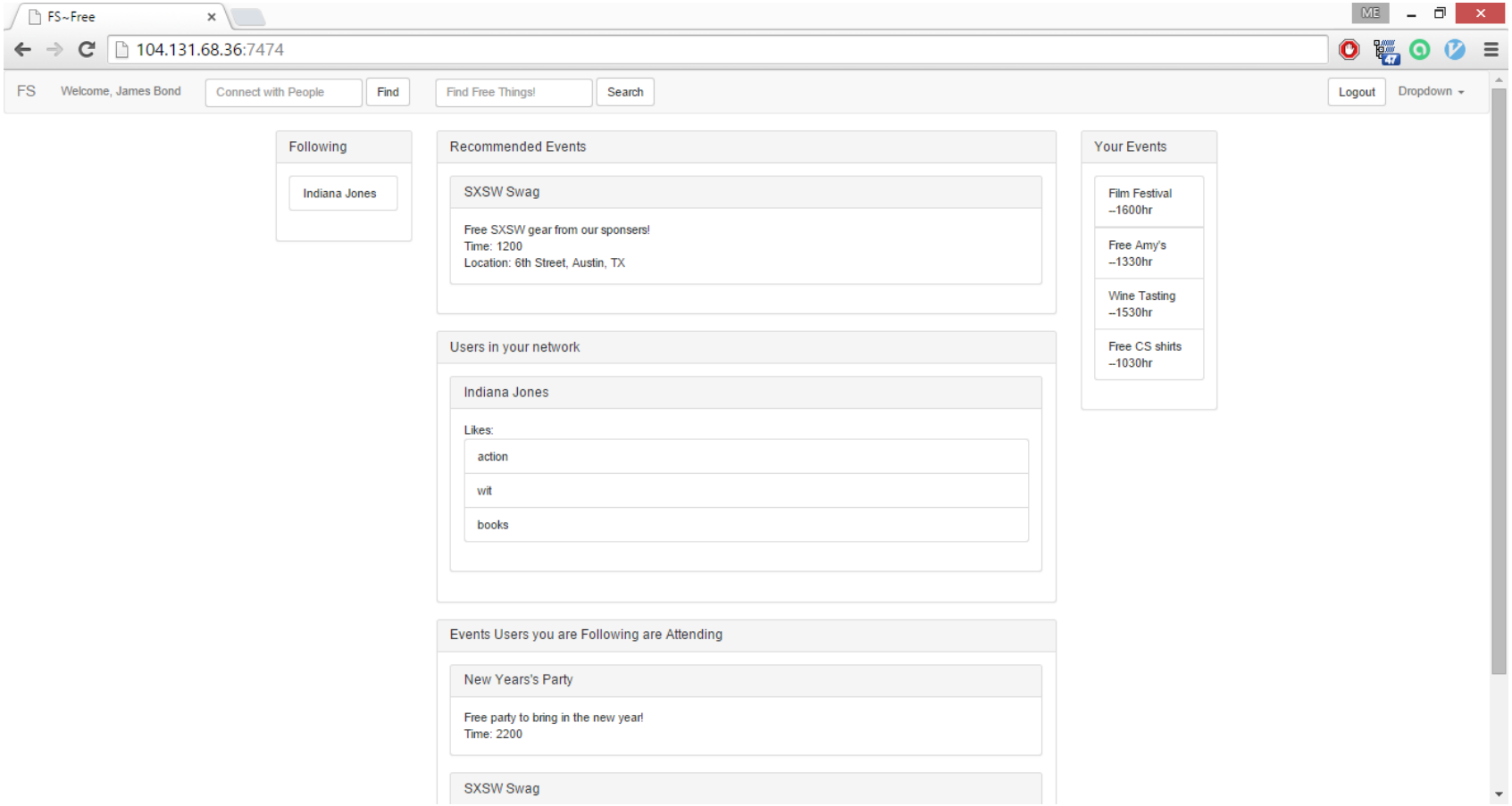
Event Creation



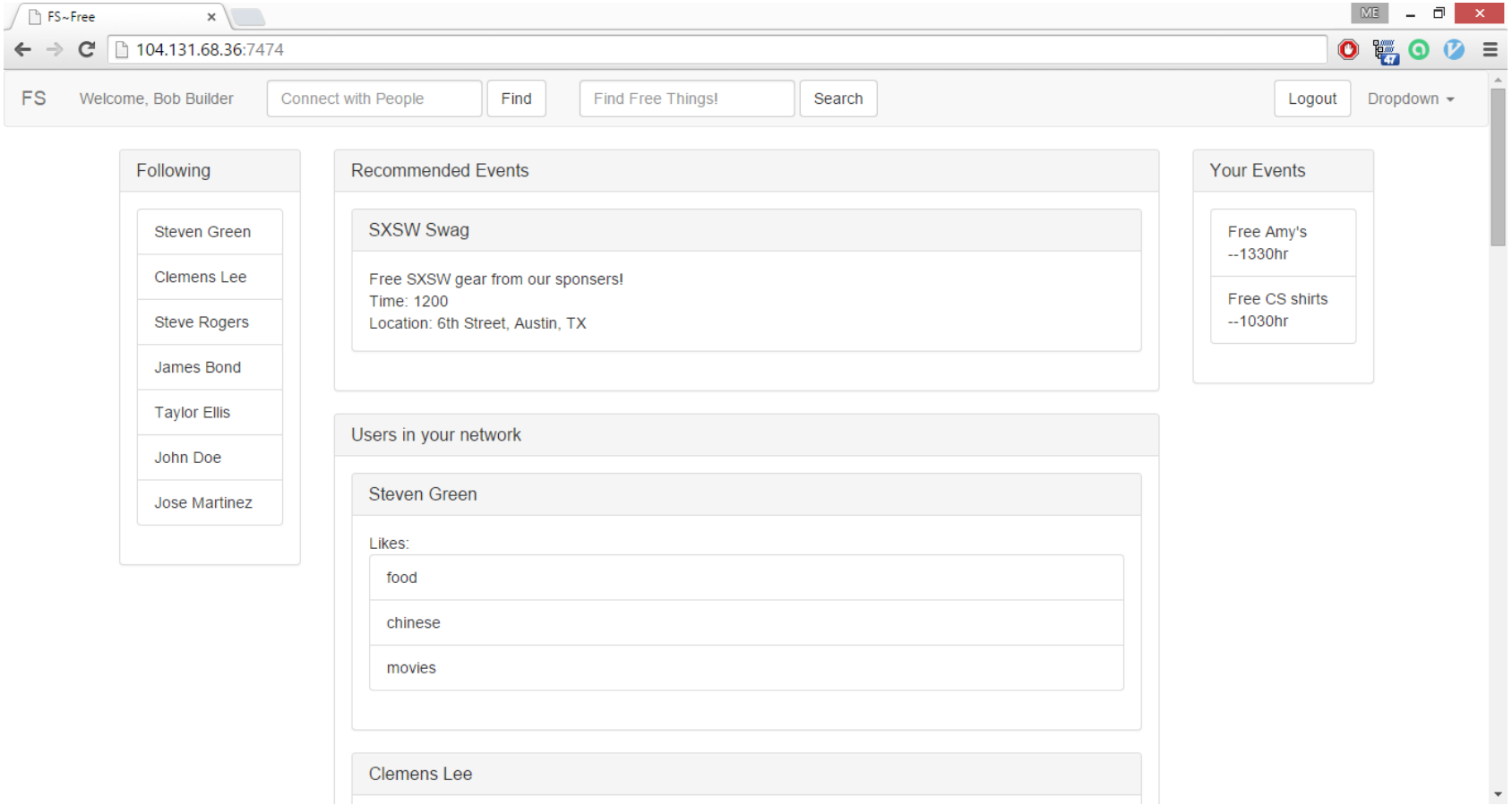
Advanced Searching



non-APEX login page



non-APEX user dash



non-APEX user dash

Events Users you are Following are Attending

New Years's Party

Free party to bring in the new year!
Time: 2200

Film Festival

Austin fifth annual film festival
Time: 1600

Madam Mam's tasting

try some delicious Asian cuisine at Madam Mam's!
Time: 1800

Wine Tasting

free sampling of wine from local vineyards
Time: 1530

SXSW Swag

Free SXSW gear from our sponsers!

non-APEX Events in your Network