End of Internship presentation (TTS-GIMBA-UI)

Saransh Kejriwal

My Introduction

- I am: Saransh Kejriwal
    - Student at Delhi Technological University
    - Majoring in Electronics and Communication Engineering

- LOB, Period of internship: TTS, June-July 2015

- Manager: Mr. Shaheena Khaleel
- Coordinator: Santosh Sudhakar Bhagwat

- Takeaways from this internship:

    - Developing mobile applications using Java Servlets
    - Understanding of databases and Backend programming
   - Frontend design using Javascript

Current Challenges

- Using JSF based architecture increases the server-side load.

- JSF templates require more rendering time on client side.

- Fetching all the entries in one servlet call is cumbersome, increases network traffic.

- Generating large tables using JSP leads to a browser crash.

- The servlet-based architecture will need heavy modifications in UI in case of a technology upgrade.

Proposed Solution

- Objectives:
  - To develop a lighter CRUD interface using EasyUI framework.

  - To use RESTful services to facilitate the data transfer

- Technologies used: HTML5, jQuery, Javascript, Java, ajax

- Architectures employed: Servlet-based API, RESTful API

- Goals:
  - Reduce footprint on Server-side UI components

  - Implement a pagination scheme for record fetching

 - Exploring REST to create technology-independent applications.

Why EasyUI ?

- Effortless parsing of JSON objects on front-end grid

- Wide variety of ready-to-use UI components to enhance look and feel

- Simple ajax-based interface of templates with JavaScript and jQuery

- More 'Event' attributes available than HTML5, hence higher code density

- Browser/Platform Independent

Architecture Diagram of Servlet-based CRUD application
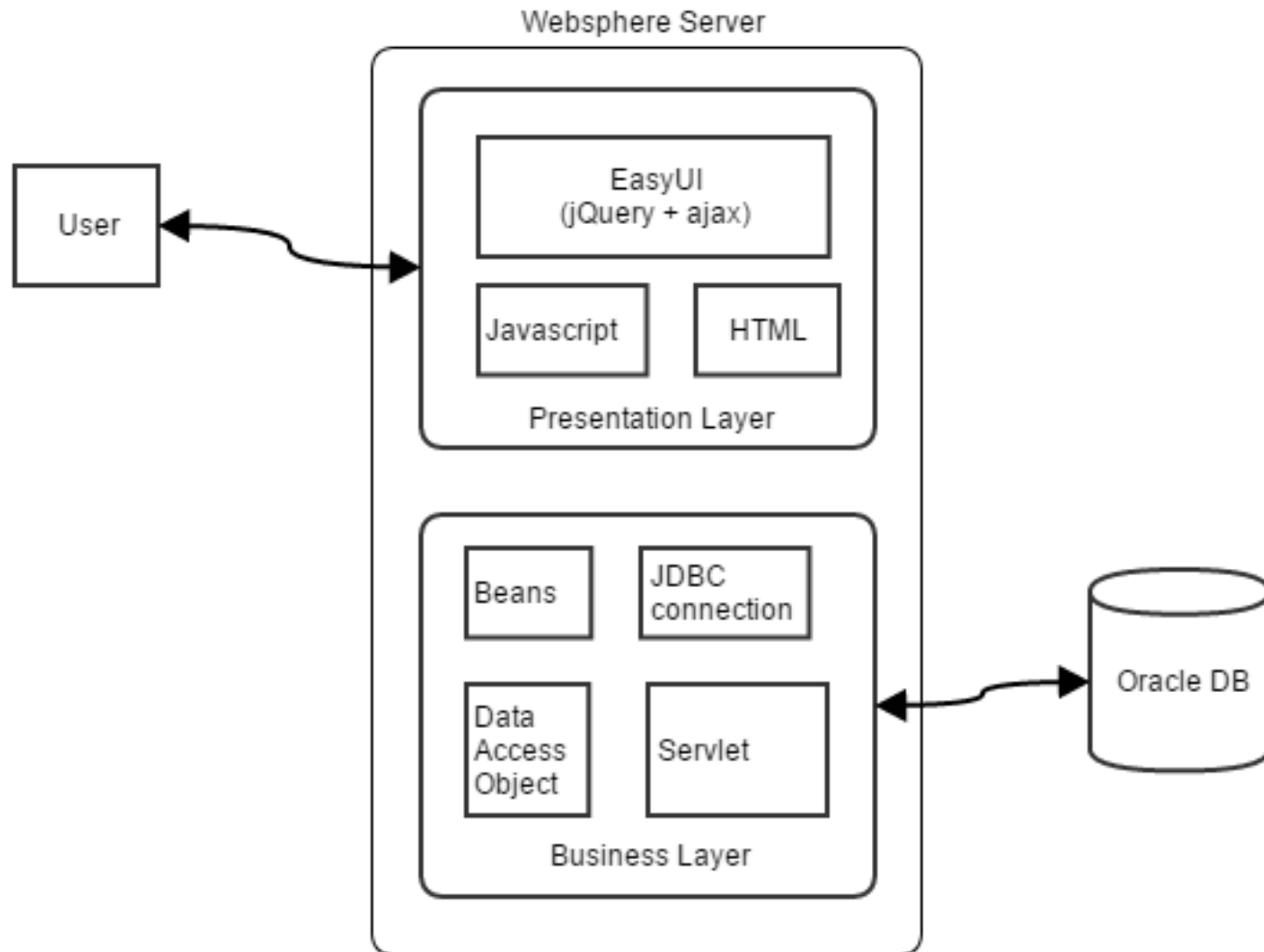
Dataflow Diagram of Servlet-based CRUD application

Application Capabilities
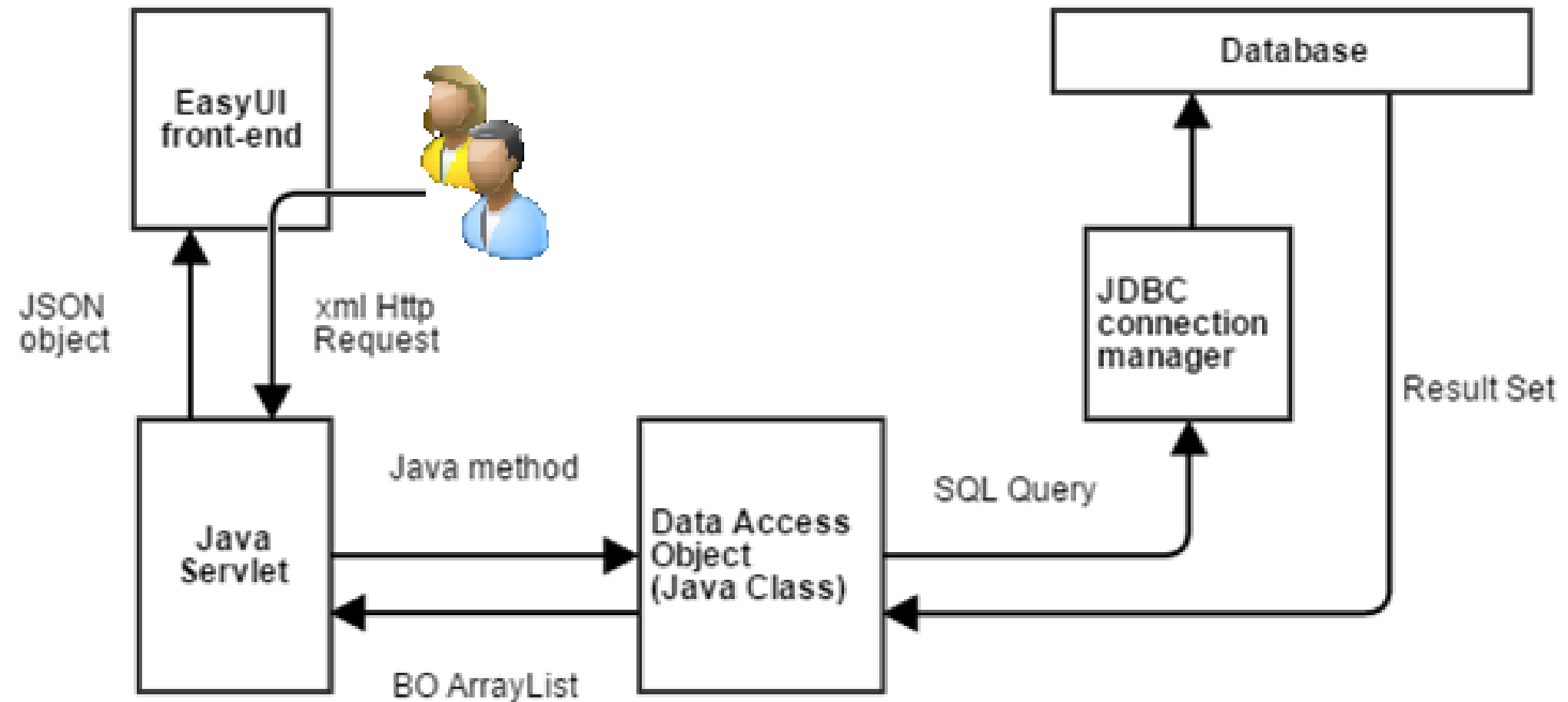
- CRUD operation with Database
    - **C**reate database records
    - **R**ead database records
    - **U**pdate database records
    - **D**elete database records

- Pagination facility using dynamic SQL wrapper

- Search facility including Auto-Suggest feature

- Front-end based showing/hiding datagrid columns

The CRUD Application

Search Record ▲ ✕

GEID	[ ]	User ID	[ ]
First Name	[ ]	Last Name	[Wil]
			Wilson
			Williams
SIP Location	[ ]	SIP Unit	Williamson
			Wilkins
Group Name	[ ]	Status	

🔍 Search

Servlet Datagrid ▲

🔄 Reset   ➕ New Record   ✏️ Update Record   ⛔ Remove Record

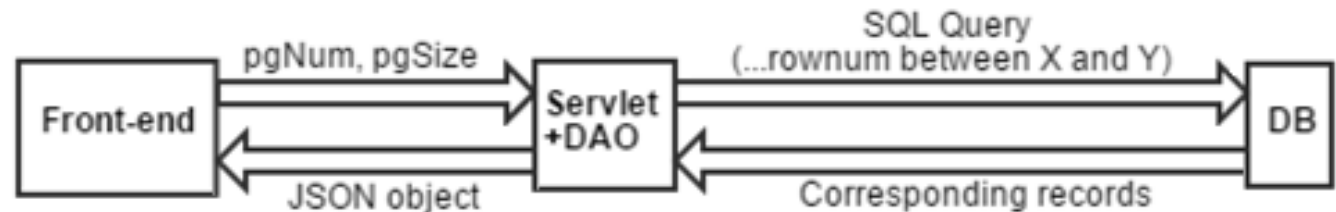|	GEID	User ID	First Name	Last Name	SIP Location	SIP Unit	Group	Status
1	4022092	jowilliams	Joseph	Williams	Cash-Delaware	Delaware Service Center	CASH/WL Modify/Authorize	NEW
2	0000345424	0000345424	Steve	Zuvich	Other-New York	GECD	EB View Only	AUTH
3	0000345424	0000345424	Steve	Zuvich	Other-New York	GECD	EB View Only	EDIT
4	1000098875	AD98875	Arijit	Dana	EB-London	e-Serve	Scorecard User	AUTH
5	0001447473	AE0001447473	Amir	Ehtisham	Other-New York	e-Bus NA	EB View Only	AUTH

|◀ ◀ **1** 2 3 4 5 6 7 8 9 10 | ▶ ▶| Displaying 1 to 5 of 763 items

Application Capabilities: Search + Auto-suggest DFD's

Pagination

$X = pgSize*(pgNum-1)+1 \quad Y = pgSize*pgNum$

pgNum, pgSize

Front-end → Servlet +DAO

JSON object

SQL Query (...rownum between X and Y)

DB

Corresponding records

Auto-suggest

text

Front-end → Servlet +DAO

JSON object

SQL Query (...a.name like 'text%')

DB

Corresponding records

Search

Search-form entries

Front-end → Servlet +DAO

JSON object

SQL Query ...WHERE records=entries

DB

Corresponding records
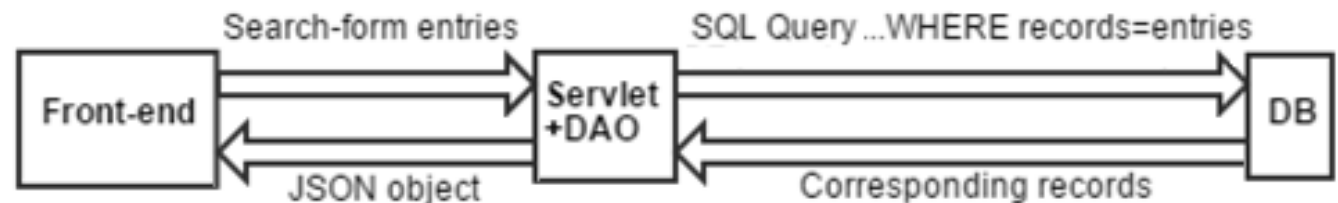
Alternate Design for CRUD

- Use independent API services that keep the UI abstract from back-end changes, and vice versa.

- REST stands for **RE**presentational **S**tate **T**ransfer. It can be used to keep the services platform/technology independent.

- RESTful service is a software architecture style that creates input "resources" for an application, which serve different purposes independently.

- Multiple REST resources can be mapped to UI without affecting one-another. These resources can be utilized as permanent data points.

- RESTlets have a better program flow while handling conditional queries.

- RESTlets are more compatible with Big-Data and Cloud, than servlets.
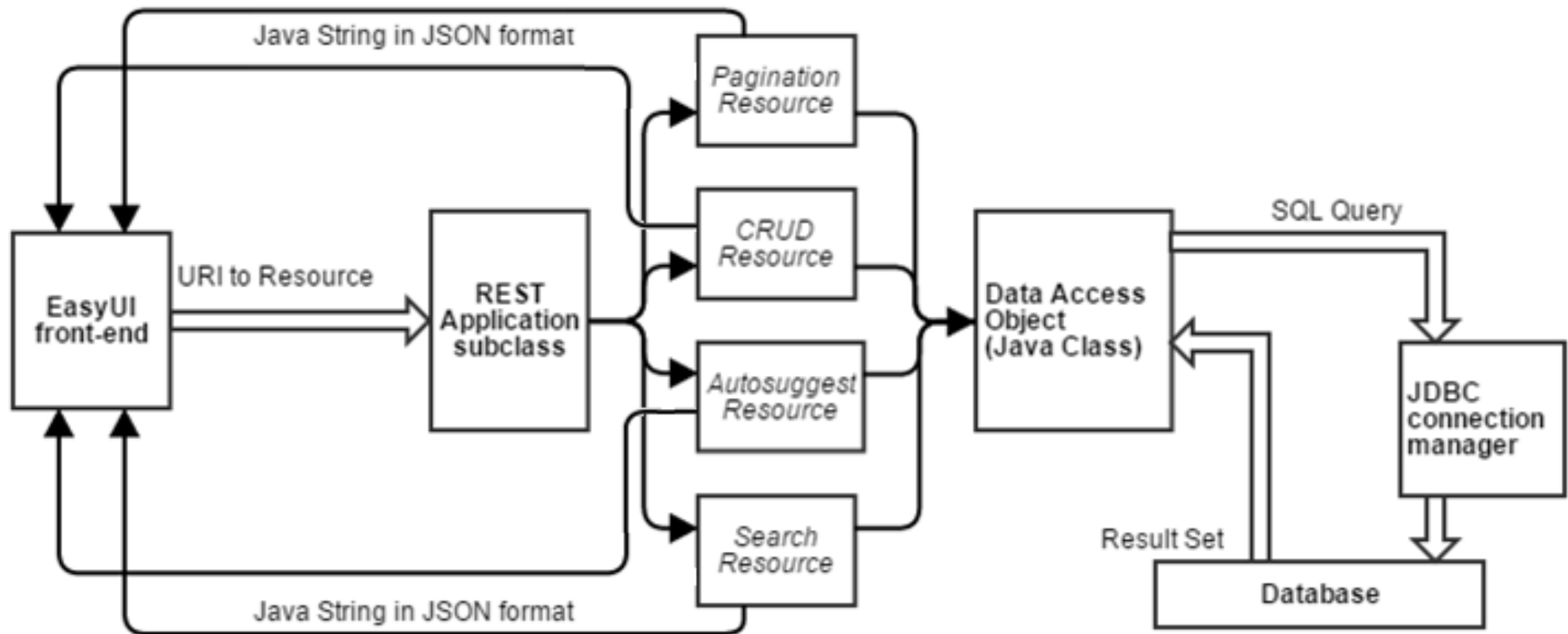
**Operations & Technology
CIO Council**

To: Senior Technology Managers

Cc: Business COOs, CAOs, CFOs and Country Officers

From: Citi CIO Council – Don Callahan, John D'Onofrio, Rich Greenbaum, Jagdish Rao, Mark Torkos and Mike Whitaker

Date: June 29, 2015

Re: New Directive on Use of External Cloud Services

Over the past three months, the CIO Council spent a great deal of time reviewing the technology trends across our industry, and defining a technology strategy to enable our businesses to leverage new market opportunities, and address current and emerging operational challenges.

Among the most exciting and promising technology trends is Cloud Computing. We think of Cloud in three parts:

- **Internal Private Cloud** – where Citi users seamlessly access centrally hosted applications and internal data for work, communication, collaboration, and analytics, regardless of location or device
- **Hybrid Cloud** – where Citi uses a dedicated environment from a third-party provider to minimize storage and compute costs while maintaining full data control
- **External Cloud** – where third parties provide Citi with complete externally hosted Software, Infrastructure, or Platform services

Cloud Computing offers tremendous advantages to Citi in the areas of cost, time to market, flexibility, and user experience. Over time, we will host applications in fewer, lower cost data

- EasyUI framework, along with client-side JS can reduce server-side load.

- Pagination makes data presentation faster, and sleek

- RESTful services can further be explored, to make the UI indifferent to back-end component upgrades.

How about a demonstration?...