

MICHIGAN STATE

U N I V E R S I T Y

Alpha Presentation

Parking Allocation and Expense Reconciliation

The Capstone Experience

Team Quicken Loans

Chelsea Bridson
Elizabeth Florian
Tim Hasselbeck
Matt Soulliere

Department of Computer Science and Engineering
Michigan State University

Spring 2015



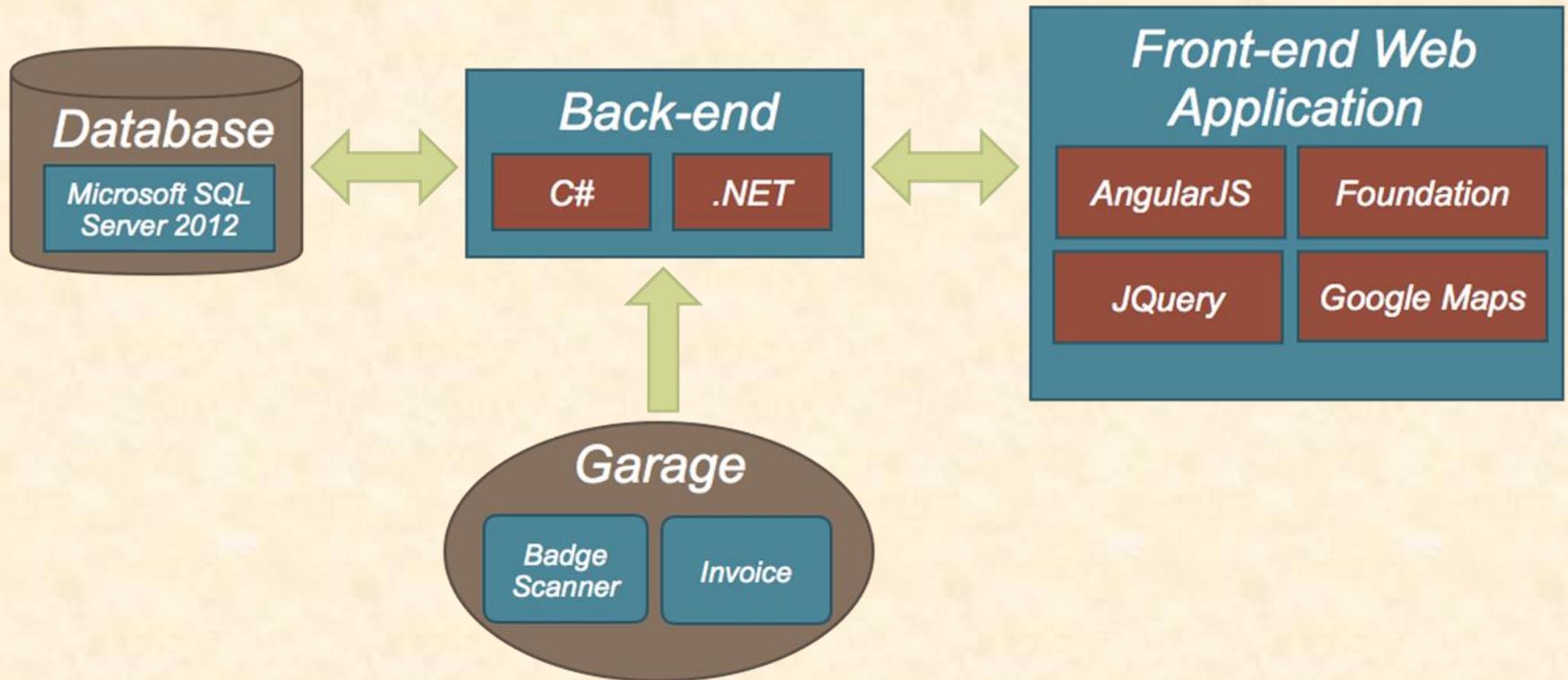
*From Students...
...to Professionals*

Project Overview

- Quicken Loans leases a large number of parking spaces in Detroit.
- They are routinely overbilled.
- Expenses are currently reconciled manually for each garage.
- We are developing an application to automate this reconciliation process.



System Architecture



Garage Map

The screenshot shows a web browser window with the address `localhost:50507/#`. The application has a navigation bar with tabs for 'Parking Dashboard', 'Expense Reconciliation', 'Garage Map', and 'Notifications'. The 'Garage Map' tab is active. The map displays several parking locations in downtown Detroit, each marked with a 'P' icon. A sidebar on the right lists the following locations:

- Compuware Garage (One Campus Martius)
- Premier
- 1001 Woodward
- Book Cadillac
- 1 Detroit
- 2 Detroit
- COBO Congress
- COBO Rooftop
- COBO Washington
- Detroit Opera House
- Financial District (FDG/DIME)
- AT&T Lot
- Brush St / Greektown
- Fort St / Greektown
- First National Garage (FNG)
- The Z
- Howard Lot A
- Howard Lot B
- Howard Lot C

Expense Reconciliation

The screenshot shows a web application interface for 'Expense Reconciliation'. The main content area contains a table with three columns: 'Garages', 'Issue', and 'Date'. The table lists various issues such as 'Failure to De-allocate', 'Un-allocated Team Member', 'Out-Dated Badge ID', 'Duplicate Allocation', and 'Invalid Allocation' across different garage locations like 'COBO Congress', 'Detroit Opera House', and 'Premier'. A sidebar on the right provides details for a selected garage, 'Compuware Garage (One Campus Martius)', including metrics like Capacity, Leased Spaces, and Average Cost Per Space.

Garages	Issue	Date
COBO Congress	Failure to De-allocate	10/28/2010
N/A	Un-allocated Team Member	10/28/2010
Detroit Opera House	Out-Dated Badge ID	10/29/2010
Book Cadillac AT&T Lot	Duplicate Allocation	10/28/2010
1001 Woodward	Failure to De-allocate	10/28/2010
Howard Lot A	Invalid Allocation	10/28/2010
Premier	Invalid Allocation	10/28/2010
COBO Rooftop	Invalid Allocation	10/28/2010
2 Detroit	Failure to De-allocate	10/28/2010
Howard Lot C	Invalid Allocation	10/28/2010
COBO Congress	Failure to De-allocate	10/28/2010
N/A	Un-allocated Team Member	10/28/2010
Detroit Opera House	Out-Dated Badge ID	10/29/2010
Book Cadillac AT&T Lot	Duplicate Allocation	10/28/2010

Garage Details (Compuware Garage - One Campus Martius):

- Capacity: Premier
- Leased Spaces: 1001 Woodward
- Team-Member Spaces: Book Cadillac
- Required Buffer Size: 1 Detroit
- Average Cost Per Space: 2 Detroit
- Average Transient Sale Price: COBO Congress, COBO Rooftop, COBO Washington, Detroit Opera House, Financial District (FDG/DIME), AT&T Lot, Brush St / Greektown, Fort St / Greektown, First National Garage (FNG), The Z, Howard Lot A



Invoice Upload

Failure to De-allocate 10/28/2010 Add Invoice

Invoice Submission

Invoice Number:

Garage:

Amount Billed:

Date Received: Number of Leased Spots:

Billing Start Date: Number of Validations:

UPM-QL @ 1001WW 122014.xls



What's left to do?

- Expand expense reconciliation to handle additional points of contention.
- Provide a history of ingested documents and expense reconciliation actions.
- Utilize data visualization to display expense information in a useful way.
- Add monthly team member usage data to Garage Map section.
- Improve UI

