Design Day Booklet Instructions

The Capstone Experience

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Department of Computer Science and Engineering
Michigan State University
Fall 2018
Design Day Booklet

• Professional Publication
  ▪ Corporate Relations
  ▪ Alumni Relations
  ▪ Recruiting
  ▪ Keepsake for You

• Contents
  ▪ Schedule of Events
  ▪ Project Descriptions
Project Description Page

• Template Distributed by Dr. D.
  ▪ Sponsor Name
  ▪ Sponsor Logo
  ▪ Project Title
  ▪ MSU Team Photo
  ▪ MSU Team Members’ Names
  ▪ Corporate Sponsors’ Names
  ▪ Headers and Footers
  ▪ Posted On Downloads Page

• Template Completed by Team
  ▪ Project Description
  ▪ Artwork
  ▪ Use Microsoft Windows Word
Team’s Job

• READ Instructions Carefully
• Check Everything
• MUST Use Windows Version of Word
• READ Instructions Carefully
• Write Project Description
• READ Instructions Carefully
• Provide Artwork
• READ Instructions Carefully
• Check Everything 100 Times
• READ Instructions Carefully
Project Description

• READ Instructions Carefully
• Newspaper / Magazine Style
• Target General Public
• Do NOT Start “Our Project is...”
• Use present tense throughout.
• Write as though your project is complete.
• Fill the entire textbox.
• Technical Jargon
  ▪ At End
  ▪ At Least Two Lines
  ▪ At Most Three Lines
• See Examples
  ▪ The Capstone Experience Booklet
  ▪ Previous Design Day Booklets ([Design Day > Booklet](#))
  ▪ MSU Men’s Basketball
Example Project Description: Spartan Basketball Player Timer

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted.

One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game.

Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding of times provides visual cues that can be seen by the coaches at a distance. If there are many yellow or red boxes, the coaches begin to plan substitutions.

A game summary for all the players can be displayed at any time whether the game clock is running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

*Spartan Basketball Player Time* is written in Visual Basic. The underlying database is Microsoft Access.
Artwork

- READ Instructions Carefully
- Screenshot(s) of Working Software
- Fill up the entire whitespace.
- Can Overlap
- Include “Framing”
  - Browser
  - iPhone, iPad
  - Android
- Add Border
  - If Blends Into White Background
  - Create Single PNG Using PowerPoint
  - Read Instructions
- Very High Resolution
- Preserve Aspect Ratios
- Crop to Eliminate Transparent “Borders”
- Use paint.net
- See Examples
  - The Capstone Experience Booklets
  - Previous Design Day Booklets (Design Day > Booklet)
  - MSU Men’s Basketball
Amazon
Asa: Your Amazon Shopping Assistant

Amazon is the largest e-commerce company in the world, accounting for 1 in 3 shopping transactions in North America.

The number of active users on messaging platforms reached 3 billion in 2015. Asa is a shopping assistant chatbot who allows Amazon to access this market. She helps users discover and purchase items through conversations on Facebook Messenger.

Asa's core functionality is to enable users to search for items and ask for product recommendations.

For example, if a user says, "I'm looking for an Animal Farm by George Orwell," Asa replies with a collection of Amazon listings for the book Animal Farm along with purchase links.

Through these conversations, Asa learns about each user and tailors future product recommendations based on what she learns. If a user asks, "Can you recommend a good book?" Asa sends a list of books based on that user's past purchases.

Users can also ask Asa to remind them to do something, such as buying a gift for their mother or purchasing textbooks before the start of the semester.

To learn how to shop with Asa, users can ask her for help at any time. Asa responds with an instructional message that gives examples of ways to chat with Asa, including examples of how to ask Asa questions.

Asa is written in JavaScript and hosted on AWS Lambda. Asa uses Wit.ai for natural language processing and AWS Pymysql for persistent data storage.

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East Lansing, Michigan
Kense Dentist
Oxen, Michigan
Evan Moran
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Sam Chang
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Amazon
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Seattle, Washington
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Derek Gahdston
Detroit, Michigan
John Mars
Detroit, Michigan
The Capstone Experience

MSU Federal Credit Union
Member Ratings and Reviews

Founded in 1927, Michigan State University Federal Credit Union serves the Michigan State community, as well as the Oakland University community. MSUFCU provides financial security and exceptional service to its members. MSUFCU has 17 branches, over 220,000 members, and more than $3.28 billion in assets.

Our Member Ratings and Reviews system enables MSUFCU members to provide feedback on MSUFCU products and services. Members can give ratings from one to five stars and write reviews for any product or service, or the customer service related to any product or service.

MSUFCU members can browse reviews by category, sort them by rating or helpfulness, and filter them by keyword. Members can comment on or rate the helpfulness of a review.

A user preferences page allows members to upload a profile picture or set a display name. Members can also check a box to remain anonymous to other members when posting.

An administrative dashboard gives MSUFCU staff access to detailed information about the reviews for each product. MSUFCU staff can reply to member reviews to get more information from members about their experiences, or to address any issues or concerns.

Our Member Ratings and Reviews web app is written in HTML, CSS, JavaScript, and PHP. The mobile versions are native apps written in Swift for Apple iOS and Java for Google Android devices. All three interface with a MySQL database.
The Capstone Experience

**Symantec**

*Web Frameworks for Multi-Factor Authentication*

As we face the threats of tomorrow, Symantec Corporation is a global leader in cybersecurity technologies. Located in Silicon Valley, Symantec offers software solutions and services related to information and computer protection.

Currently, user data is protected often with only a password, which is no longer adequate. One approach to increasing security is to use two-factor authentication (2FA), which adds a second factor such as a security code sent as a text message.

Symantec provides a 2FA product called Valuation and ID Protection, also known as VIP Service, which is a Simple Object Access Protocol (SOAP) web service. Unfortunately, using the XML-based SCAP APIs is challenging to modern web frameworks, creating a barrier to entry that is significant enough for most developers to choose a competitor's 2FA product.

Our Web Frameworks for Multi-Factor Authentication enables developers to integrate Symantec's VIP easily into any modern web framework. We provide software development kits (SDKs) for three of the most widely used web technologies: Ruby, Python and Node.js. Using our SDKs, developers can implement Push, SMS, voice code or VIP 6 digit security code methods as a second factor of authentication.

Sample applications demonstrate the ease of making and receiving function to VIP Service calls in native programming language. Along with these sample applications, documentation is available on the Git Hub.

Open-source SDKs are provided for Ruby, Python and Node.js on the Ruby Gem, PyPi and NPM repositories, respectively.

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Team Members (left to right):
- Caleb McNeil
- Traverse City, Michigan
- Allen Hayash
- Grand Rapids, Michigan
- Hailin Ye
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- Beverly Hills, Michigan
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**Symantec**

*Prize Sponsor*:
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- Mountain View, California
- Renata Ross
- Mountain View, California
Amazon
ACRA: Amazon Customer Review Analyzer

Amazon, the largest online retailer in North America, sells a large variety of products. After a sale, customers may post reviews related to all aspects of the sale. On average, users write millions of reviews per year. With the large number of reviews posted, the likelihood that consumers encounter reviews unrelated to product quality is high. Without an automated way of classifying reviews, consumers may have to sift through many useless reviews when researching a big-ticket item.

Our Amazon Customer Review Analyzer, ACRA, automatically classifies customer reviews into two categories: those related to product quality and those unrelated to product quality. To do so, ACRA uses natural language processing and machine learning. This automatic classification of reviews allows Amazon shoppers to focus only on reviews that are relevant to product quality, thereby enhancing their shopping experience. Amazon shoppers can search for products using our ACRA iPhone app, which separates reviews into product quality and non-product quality categories. Additionally, users can report misclassified reviews to refine and crossvalidate our classifiers’ performance.

Our iPhone application is written in Swift and communicates with our backend using API Gateway and Lambda hosted on Amazon Web Services (AWS). Amazon Machine Learning and PyTorch’s NEAR library are used to classify reviews hosted in AWS’s S3 and DynamoDB.

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Artwork Example

The Capstone Experience

MSU Federal Credit Union
Banking with Amazon’s Alexa and Apple’s Siri

Founded in 1937, Michigan State University Federal Credit Union offers financial services to Michigan State University and Oakland University faculty, staff, students, alumni association members and their families. With 29,000 members and over $1.3 billion in assets, MSUFCU is the largest university-based credit union in the world.

MSUFCU currently offers mobile banking apps on both Apple’s iOS and Google’s Android devices for members to access their funds and perform banking transactions at any time. Our Banking with Alexa and Siri systems maintain MSUFCU’s technological edge by expanding their banking offerings to voice-controlled smart devices such as Amazon Alexa-enabled devices, Apple Watch and Android Wear.

Voice-controlled technologies give MSUFCU members new ways to interact with their accounts, including accessing their account balance, transferring money and obtaining information about recent transactions. Members can request other information about MSUFCU such as branch hours, current loan rates and the location of the nearest ATM or Branch.

Our companion administrative web portal enables MSUFCU staff to manage the available information and services offered by these voice technologies. Frequently asked questions can be added to the apps in minutes to improve the user experience.

The Alexa skill is written in Python, Apple Watch in Swift and Android Wear in Java. All three connect to a MySQL database through JSON. The administrative web portal is written in PHP.

Michigan State University
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- Steven Jorgenson
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- University City, Michigan
- Will Rudnick
- Champaign, Illinois
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- Saline, Michigan
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Michigan State University Men’s Basketball
Spartan Basketball Player Timer

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1 Template
From Dr. D.
To Team

N.B. The format of the template has changed.

Meijer
Mobile Location-Based Product Promotion

Insert your project description here. Target your writing for the general public. Begin with the motivation for your project. Do not begin with phrases like “Our project was to make...” or “For our project we made...”. See the example that Dr. D. wrote for Spartan Basketball Player Timer.

Use a “newspaper” style of writing. Sentences and paragraphs should tend to be short and snappy. It’s even okay to have a paragraph with only one sentence, just not too many of them. Write everything in the present tense.

If space permits, you can reference your artwork at the right.

Use 11-point, Times New Roman font. Use single space lines. Justify both margins. Use 6 pts of space between paragraphs; do not use blank lines between paragraphs. Use one space between sentences within a paragraph.

The size of this textbox is 4.1” (wide) by 5.25” (high). Do not change the size of the textbox. Your text must fit exactly within this textbox with these dimensions. This means that your text should fill the entire textbox but no more.

The last line of each paragraph should be at least one-half to three-quarters of the width of the textbox. Do not end a paragraph with a line containing one or two words.

After you have a draft, make the template available to your clients. Get feedback from them before you sub.

The last two lines or so should include technical information about your project. See previous Design Day booklets and Spartan Basketball Player Timer for examples.

Michigan State University
Team Members (left to right)
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Jason Bull
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Xavier Durand-Hollis
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Kevin Pasty
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Meijer
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Grand Rapids, Michigan
Chris Latke
Grand Rapids, Michigan
Jim Poll
Grand Rapids, Michigan
Morali Rasapalan
Grand Rapids, Michigan
Dave Rodgers
Grand Rapids, Michigan
Meijer
Personal Shopping Assistant

To insert your artwork, right mouse click on this artwork and select “Change Picture…”
Put each piece of artwork in a separate textbox.
Do not change the textbox’s black external border and white internal border. Think of them as handles. The black borders can overlap anything in your layout since the black borders will be deleted before your template is submitted to our graphic designer.

Michigan State University
Team Members (left to right)
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Megan Lippert
DeWitt, Michigan
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The Capstone Experience
Design Day Booklet Content
Page N • 10
Meijer
Mobile Location-Based Product Promotion

Founded in 1934, Meijer serves the Midwest as one of the largest supermarket chains in the United States. Meijer has been known for innovation ever since they created the first modern supercenter in 1962. Continuing on this journey of innovation, Meijer is utilizing their mobile application to revolutionize today’s shopping experience.

One area that Meijer hopes to enhance is the way product promotions are presented to customers.

We have created an iOS application that shows product promotions based on a customer’s location in any Meijer store as well as an administrative interface for analytics.

Our iOS application communicates with strategically placed iBeacons in a physical Meijer store through Bluetooth Smart. When a customer walks within range of an iBeacon, a notification will appear on their phone showing all nearby product promotions and sales.

The administrator interface allows employees to create, edit, and delete iBeacon product promotions. Customer analytics are presented in this interface and show how effective each beacon is. This valuable data can be leveraged by Meijer and their partners to track the connection between promotions and purchase decisions. This project also paves the way for other location-based customer services at Meijer.

Our iOS application is written in C# while our administrator interface is built with HTML, CSS, and AngularJS. Microsoft Azure hosts the administrator website and database which uses SQL Server 2012.

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Jason Bull, Rochester Hills, Michigan
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Kevin Pardy, Lansing, Michigan

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Chris Laskie, Grand Rapids, Michigan
Jim Poll, Grand Rapids, Michigan
Murali Rajagopalan, Grand Rapids, Michigan
Dave Rodgers, Grand Rapids, Michigan
Meijer
Mobile Location-Based Product Promotion

With over 200 stores, Meijer serves the Midwest as one of the largest supermarket chains in the country. Having created the first modern supercenter in 1963, Meijer is known for customer service and continual innovation.

Meijer is revolutionizing today’s shopping experience in many ways including the way that product promotions are delivered to its customers.

Our Mobile Location-Based Product Promotion system features an iPhone app that shows product promotions based on a customer’s location within any Meijer store. For example, when walking down the cereal aisle, a customer may be alerted that their favorite cereal is on sale.

Our iPhone app determines a customer’s location in a store using strategically placed devices called iBeacons, which communicate with iPhones using Bluetooth. When a customer walks within range of an iBeacon, a notification appears on their phone showing all nearby product promotions and sales.

In addition to our iPhone app, our system includes a web app with which Meijer associates create, edit and delete iBeacon product promotions and sales.

Our web app also displays customer analytics enabling Meijer and its partners to evaluate the impact of location-based promotions on buying decisions.

Our iPhone app is written in C# while our administrator interface is built with HTML, CSS and AngularJS. Microsoft Azure hosts the administrator website and database which uses SQL Server 2012.

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In addition to our iPhone app, our system includes a web app with which Meijer team members can create, edit and delete iBeacon product promotions and sales.

Our web app also displays customer analytics enabling Meijer and its vendor partners to evaluate the impact of location-based promotions on buying decisions.

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Michigan State University
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Meijer
Mobile Location-Based Product Promotion

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Grand Rapids, Michigan
Jim Poit
Grand Rapids, Michigan
Murali Rajagopalan
Grand Rapids, Michigan
Dave Rodgers
Grand Rapids, Michigan
Submission

• READ Instructions Carefully
• Assets Folder
  ▪ Name: team-urban-science-design-day-booklet-page
  ▪ Contents
    o team-urban-science-design-day-booklet-page.docx
    o team-urban-science-artwork-1.png (Very High Resolution)
    o team-urban-science-artwork-2.png (Very High Resolution)
    o team-urban-science-artwork-3.png (Very High Resolution)
  ▪ Zipped
• Email
  ▪ Subject: Team Urban Science Design Day Booklet Project Page
  ▪ Body
    o Not Blank
    o Something Professional
  ▪ Attachment
    o Zipped Assets Folder
    o team-urban-science-design-day-booklet-page.zip
  ▪ Due 12:01 a.m., Friday, October 5. (Think Thursday night.)