

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

Dynamic Visualization of Architecture Diagrams

The Capstone Experience

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

Project Sponsor Overview

- Established in 1941 by Dr. Homer Stryker, Stryker was founded with the goal of enhancing the quality of medical devices.
- Based in Kalamazoo Michigan, the company continues to produce industry leading technology used in surgeries, orthopedics, and neurology.
- Today they strive to improve patient and healthcare outcomes.
- Stryker Integrations Center of Excellence works optimizing data integrations between systems.



Project Functional Specifications

- Current architecture diagrams are done solely by hand by Stryker CoE architects.
- Over 200 systems and thousands of integrations which makes diagrams very complex.
- Our software allows for workers to filter through systems and generate an optimized and functional diagram.
- These diagrams can be exported into Microsoft Visio files for further improvements, or their data can be exported to Excel.
- Workers will be able to save lots of time and mistakes are mitigated greatly.



Project Design Specifications

- Page One
 - Search boxes with dynamic searching
 - Search button to form a data set
 - One button to export to excel file
 - One button to export to Visio diagram
- Page Two
 - Similar to page one
 - A boxes for user to input texts
 - Translate to SQL queries
- Page Three
 - Customize number of systems and interactions
 - Generating template diagram
- About Page
 - About page: introduction of every page



Screen Mockup Page 1

The screenshot shows a web browser window with the URL `stryker.com/systems`. The page features a yellow header with the Stryker logo and navigation links: **Category Search**, **Text Search**, **Template Creator**, and **About**. A hamburger menu icon is on the left. The main heading is **Enterprise System Integration (ESI) Category Search**.

The search form includes the following fields:

- Integration Name ***: A dropdown menu.
- Integration Pattern ***: A dropdown menu.
- Integration Platform ***: A dropdown menu with "SAP PI" selected.
- ESI only**: A checkbox.
- Primary Source System ***: A dropdown menu.
- Primary Target System ***: A dropdown menu.
- Number**: A dropdown menu.
- Primary Source Protocol ***: A dropdown menu.
- Primary Target Protocol ***: A dropdown menu.
- Change Number**: A dropdown menu.
- Region**: A dropdown menu.
- Division**: A dropdown menu.
- Status**: A dropdown menu.

Below the form is the **ESI Results** section, which contains a table with the following data:

	Number	Version	Status	Name	Created By	Region	Division	Source System	Target System ...	Intergration Platform
<input type="checkbox"/>	ESI-2345	4.0	Production	Stock fom SAP	Atlanta, GA	US	Endoscopy	Middleware Stage...	SFDC - Stryker O	SAP PI
<input type="checkbox"/>	ESI-3456	2.0	Proposal	Stock fom SAP	Atlanta, GA	US	Endoscopy	ERP SAP S4...	SFDC - Stryker P	SAP PI

At the bottom right, there are three buttons: **Generate Arch Diagram**, **Generate Visio Diagram**, and **Export to Excel**.



Screen Mockup Page 2

The screenshot displays a web browser window with the URL `stryker.com/systems`. The page features a yellow header with the Stryker logo and navigation links: **Category Search**, **Text Search**, **Template Creator**, and **About**. A hamburger menu icon is visible on the left. The main heading is **Enterprise System Integration (ESI) Text Search**. Below this is a search bar with the placeholder text "Search *" and a search button. The search results section, titled "ESI Results", contains a table with two rows of data. At the bottom right, there are three buttons: "Generate Arch Diagram", "Generate Visio Diagram", and "Export to Excel".

Number	Version	Status	Name	Created By	Region	Division	Source System	Target System ...	Intergration Platform	
<input type="checkbox"/>	ESI-2345	4.0	Production	Stock fom SAP	Atlanta, GA	US	Endoscopy	Middleware Stage...	SFDC - Stryker O	SAP PI
<input type="checkbox"/>	ESI-3456	2.0	Proposal	Stock fom SAP	Atlanta, GA	US	Endoscopy	ERP SAP S4...	SFDC - Stryker P	SAP PI



Screen Mockup Page 3

The screenshot shows a web browser window with the URL `stryker.com/systems`. The page features a yellow header with the Stryker logo and navigation links for "Category Search", "Text Search", "Template Creator", and "About". A hamburger menu icon is visible on the left. The main content area is titled "Enterprise System Integration (ESI) Template Creator".

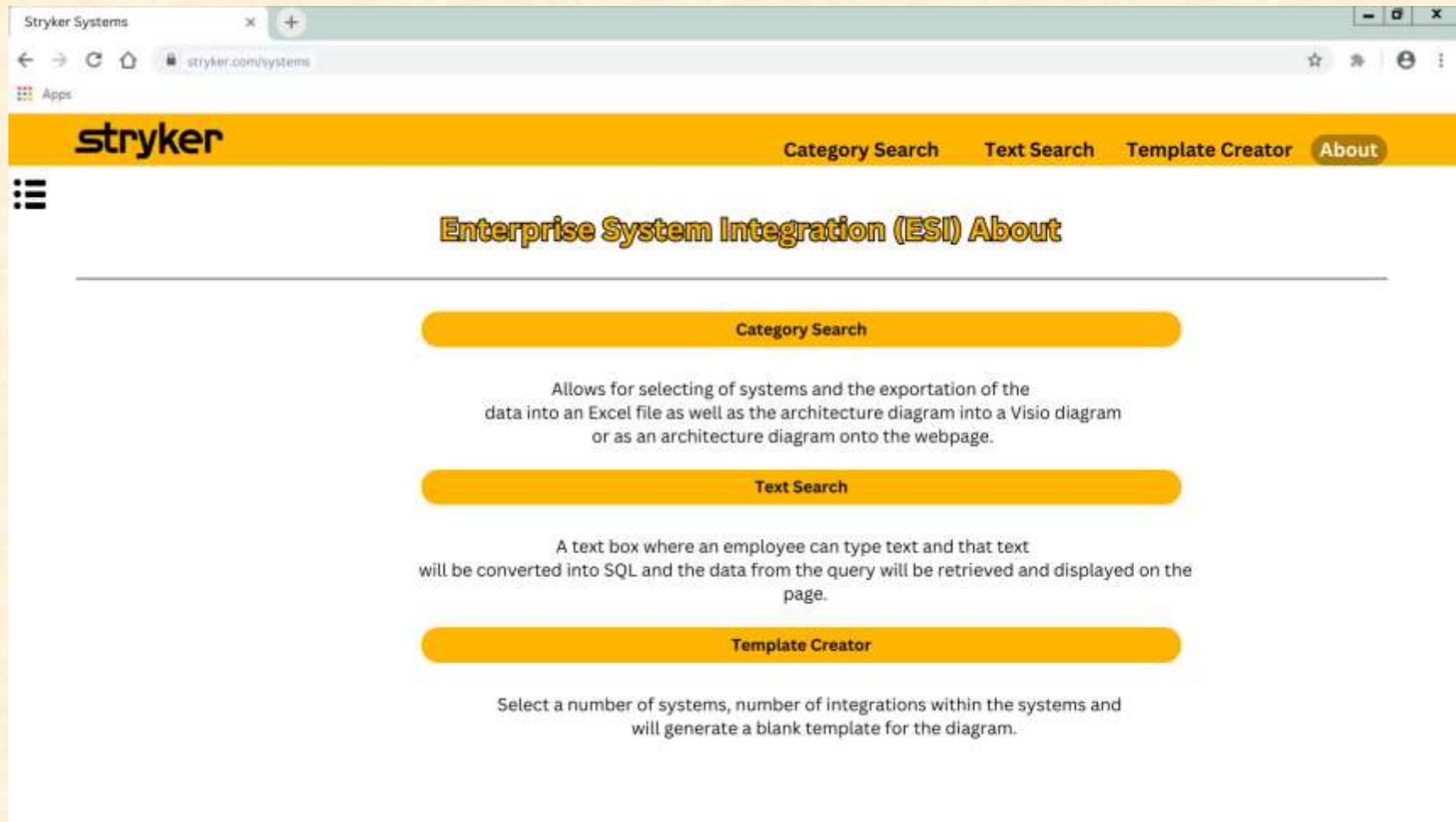
The form includes the following elements:

- Number of Systems ***: A dropdown menu with the value "3" selected.
- Number of Integrations ***: A table with two columns, "From" and "To", and five rows of dropdown menus.
- Generate Visio Template**: A yellow button.

	From	To
1	<input type="text" value="1"/>	2
1	<input type="text" value="1"/>	3
2	<input type="text" value="2"/>	1
2	<input type="text" value="2"/>	3
3	<input type="text" value="3"/>	1
3	<input type="text" value="3"/>	2



Screen Mockup About Page

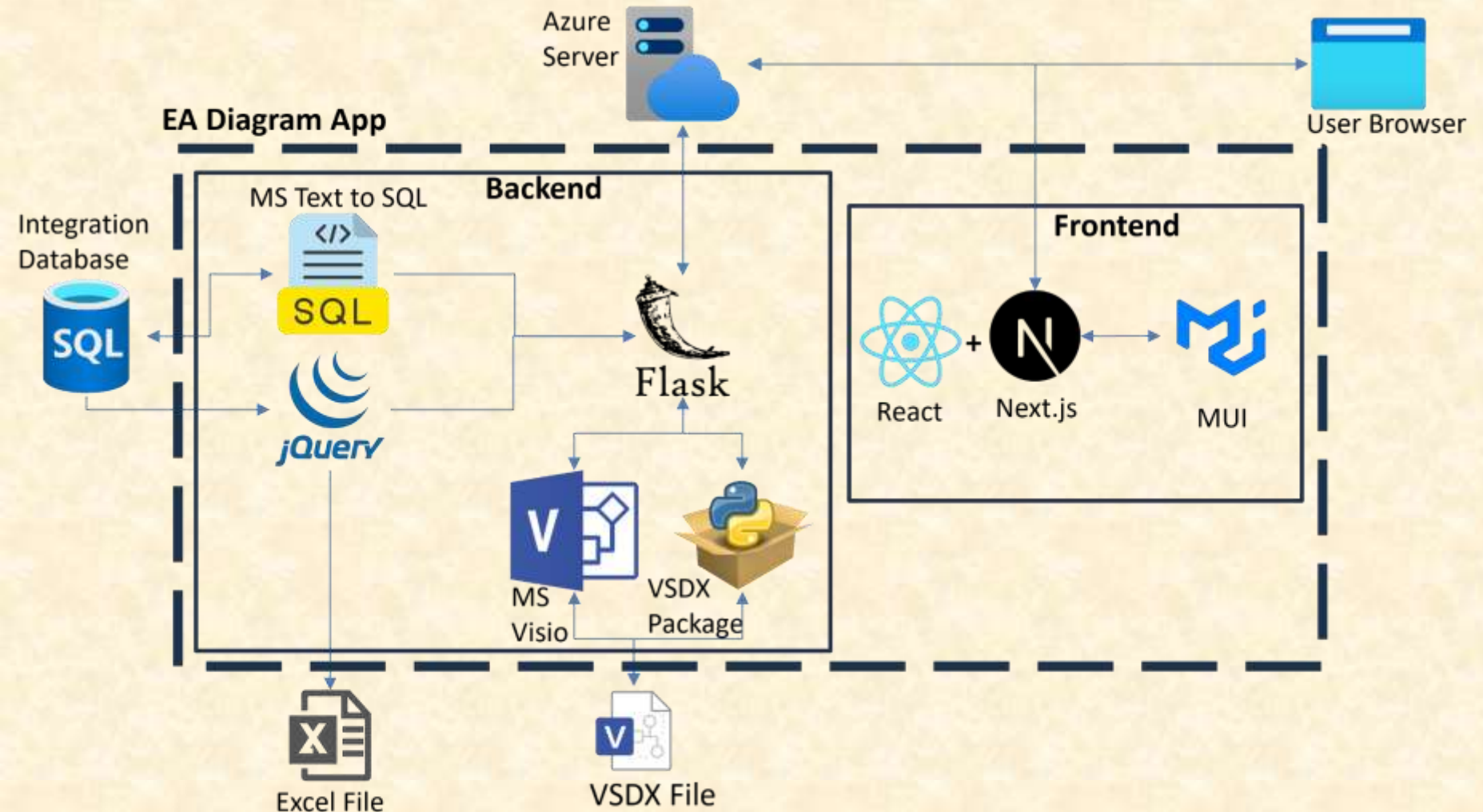


Project Technical Specifications

- The Dynamic Visualization of Architecture Diagrams is a web-based application which is built using Flask, React, and a Microsoft SQL Database.
- Front end development is aided by various packages inside of the React framework.
- Back-end development is done using the Flask framework.
- The application will be deployed to Stryker's Azure platform as an "Azure Web App".



Project System Architecture



Project System Components

- Hardware Platforms
 - Lab computers
- Software Platforms / Technologies
 - Microsoft Azure
 - MS SQL Server Management Studio
 - React
 - Flask
 - VSCode
 - GitLab



Project Risks

- Visio file integration
 - Export diagrams to a specific Visio file type (vsdx)
 - Currently exploring available tools, python library and MS tools
- Diagram organization
 - Diagrams with complicated structures must be easy to read
 - Experimentation of existing orthogonal drawing algorithms
- Excel file integration
 - Data within diagrams must be exported to excel
 - Currently exploring available tools, Power BI and jQuery
- Drawing Diagrams on Webpage with Parity
 - Making sure the diagrams drawn on the webpage closely match exported diagrams.
 - Exploring export tools thoroughly to understand construction.



Questions?

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