

MICHIGAN STATE
UNIVERSITY

Project Plan

Cybersecurity Management System

The Capstone Experience

Team Aptiv

Ashtaan Rapanos

Clayton Peters

Dillon Brown

Wei Jiang

Winton Qian

Department of Computer Science and Engineering

Michigan State University

Spring 2018



From Students...
...to Professionals

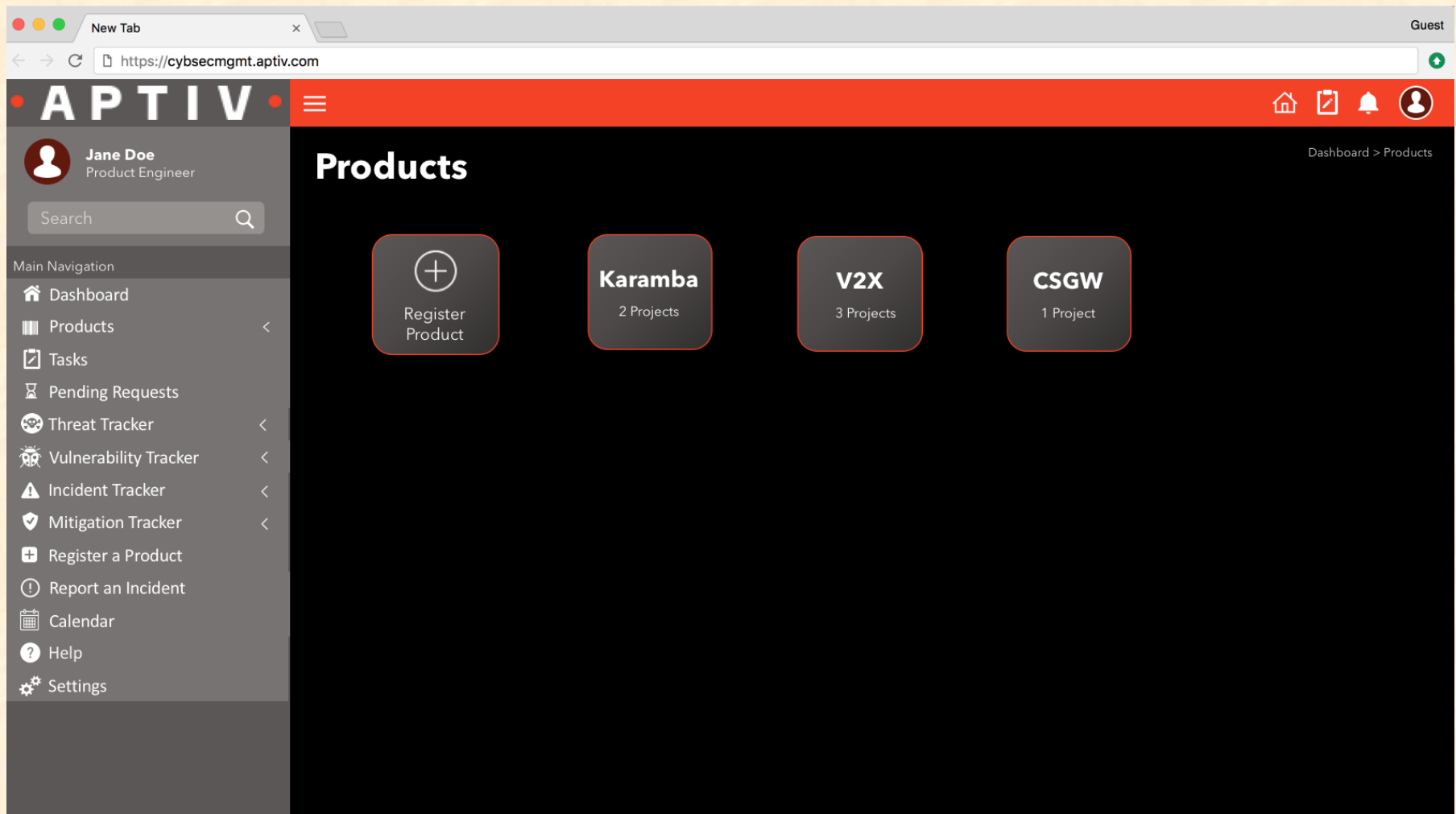
Functional Specifications

- Application to help with automation of Aptiv's cybersecurity processes
 - TARA, Vulnerability/Penetration Assessments, Mitigation Remediation, Incident Response
- 4 Trackers for analysis and visualization of information collected by system
 - Threat/Risks, Vulnerabilities, Incidents, Mitigations
- Task management

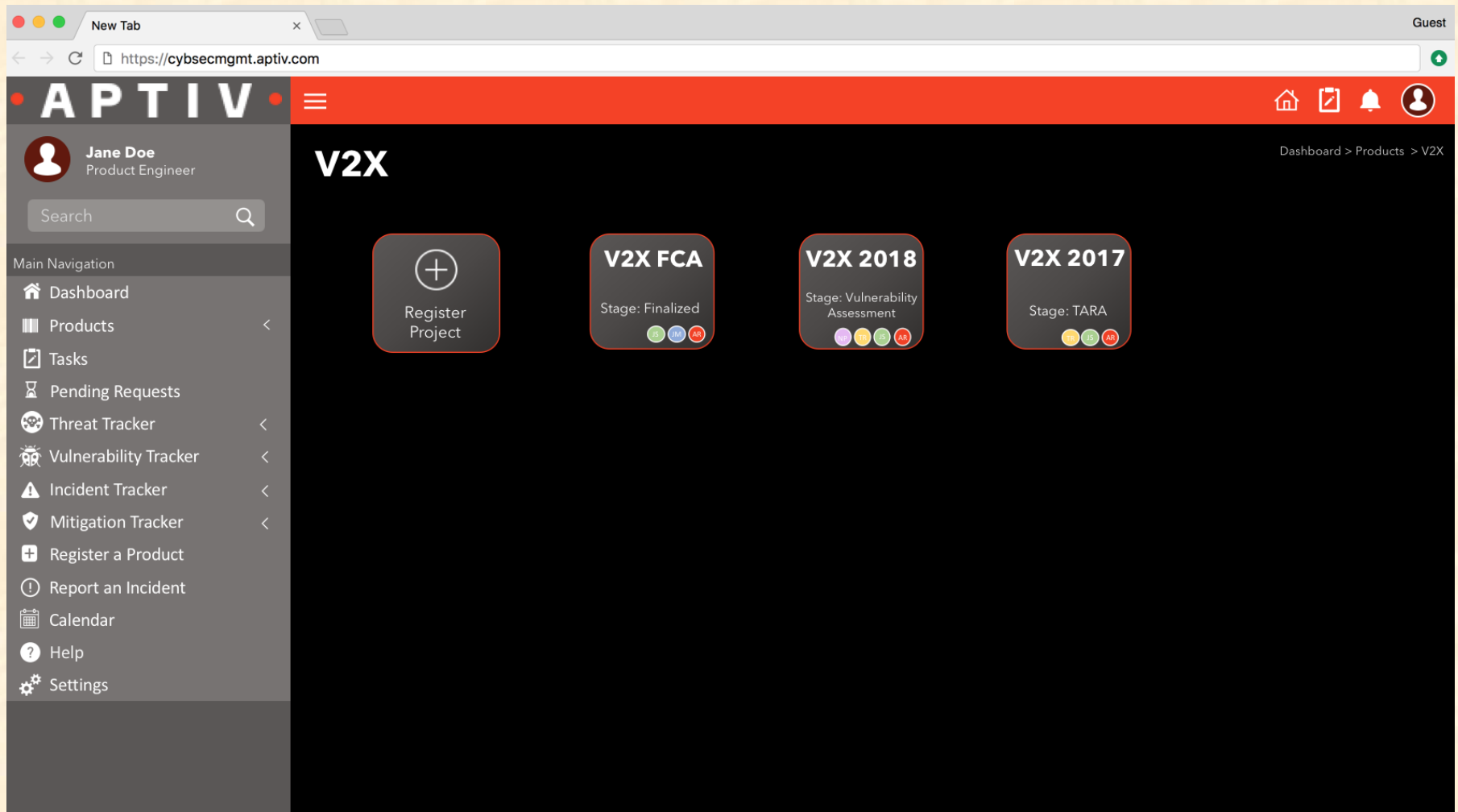
Design Specifications

- ASP.NET (C#) Web Application
- Simple interface for all users
 - Dashboard
 - Project Pages
 - Cybersecurity Process Modules
 - Data Trackers
 - Task Manager

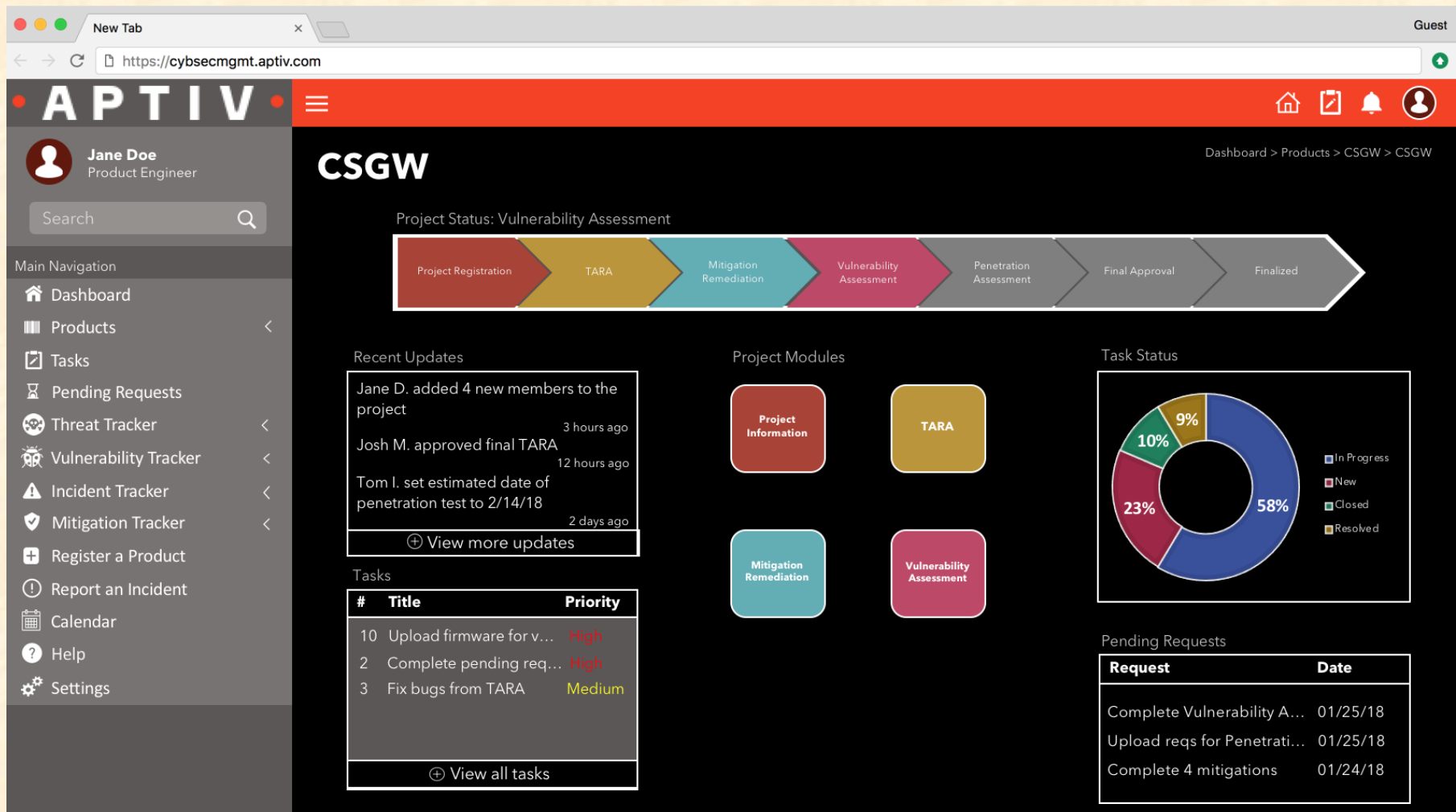
Screen Mockup: Product Dashboard



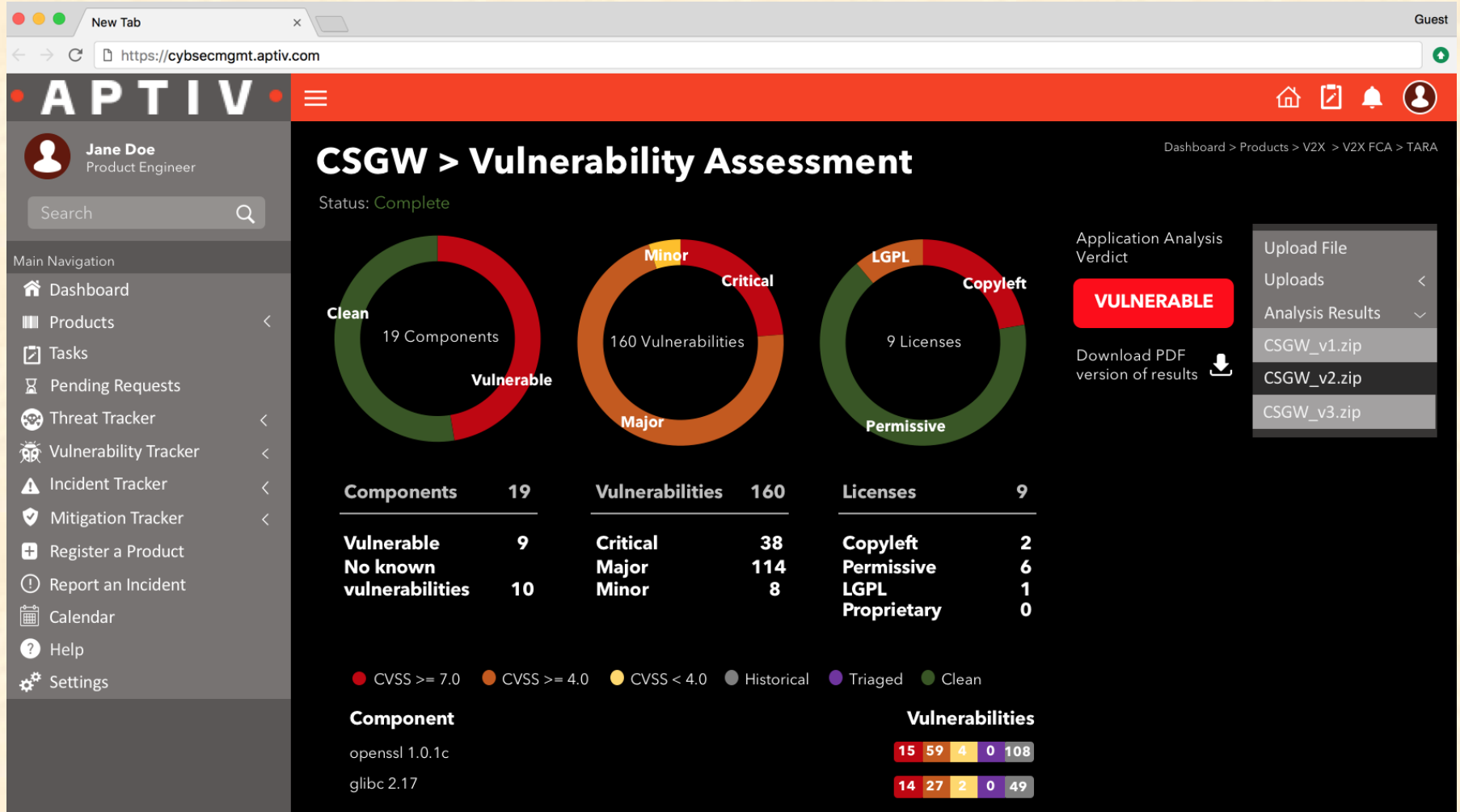
Screen Mockup: Project Dashboard



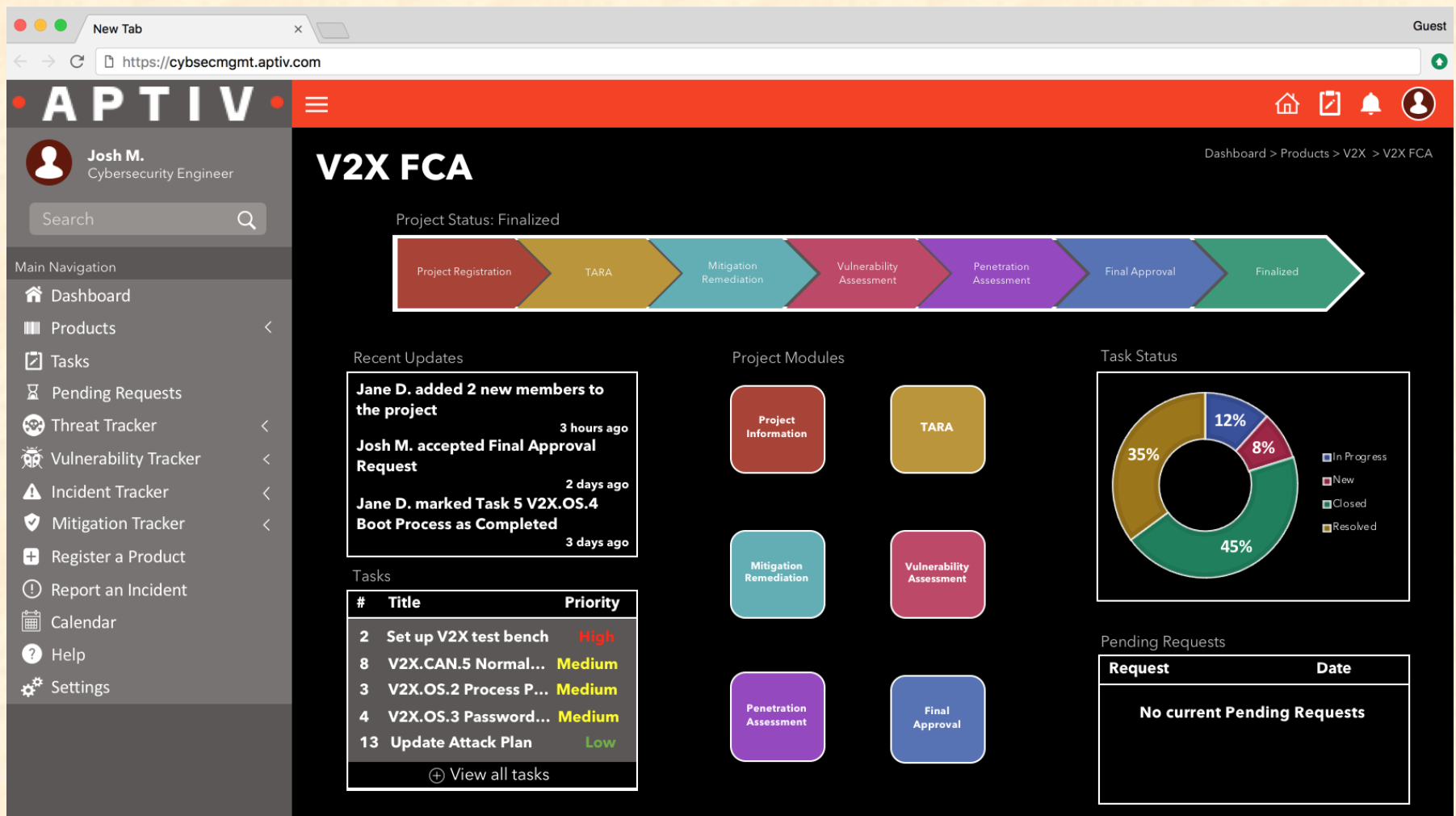
Screen Mockup: Incomplete Project Page



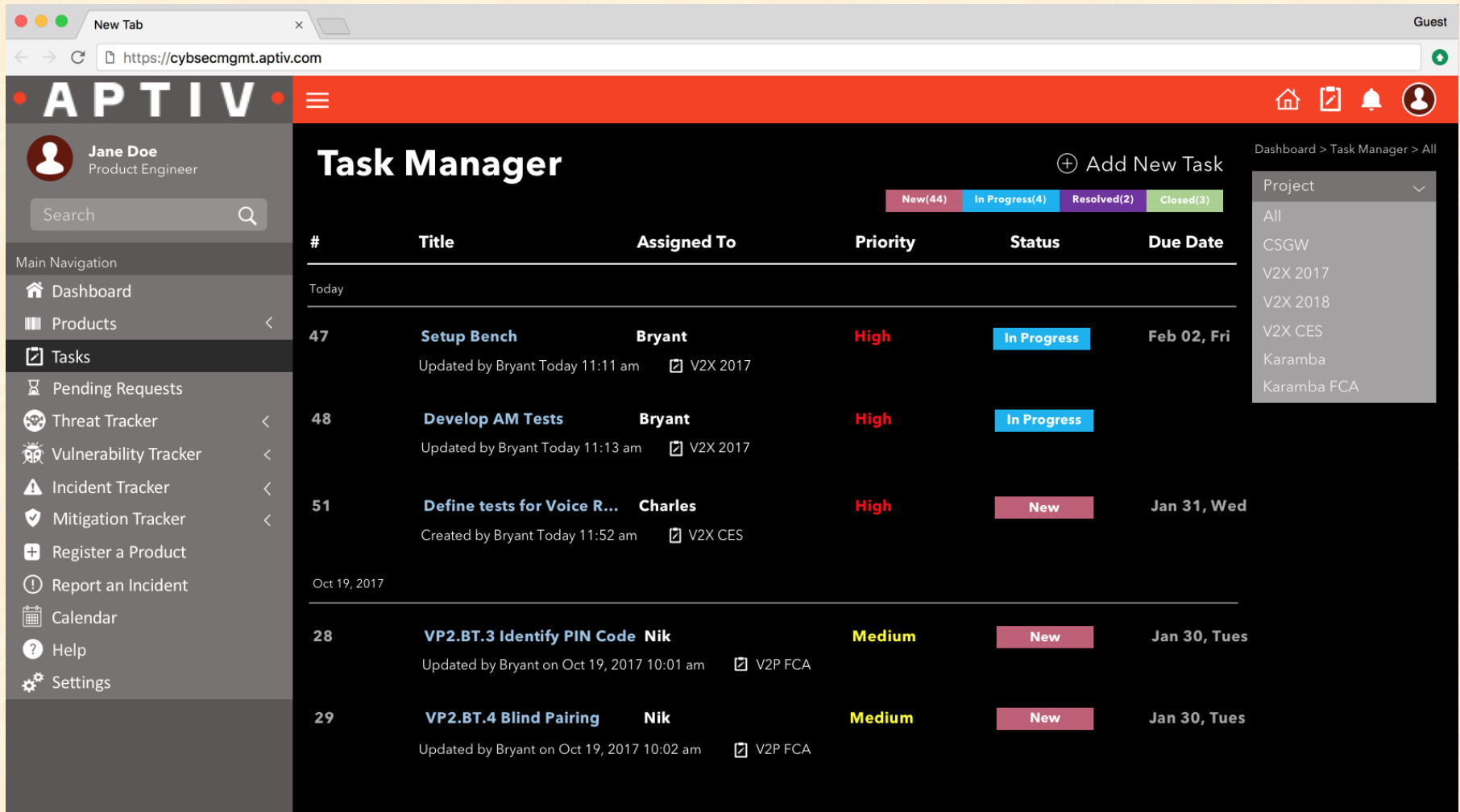
Screen Mockup: Vulnerability Assessment Module



Screen Mockup: Completed Project Page



Screen Mockup: Task Manager



The mockup shows a web browser window with the URL <https://cybsecmgmt.aptiv.com>. The page features a red header with the Aptiv logo and a user profile for Jane Doe, Product Engineer. A left sidebar contains a search bar and a main navigation menu with options like Dashboard, Products, Tasks, Pending Requests, Threat Tracker, Vulnerability Tracker, Incident Tracker, Mitigation Tracker, Register a Product, Report an Incident, Calendar, Help, and Settings. The main content area is titled 'Task Manager' and includes a '+ Add New Task' button. It displays a table of tasks with columns for ID, Title, Assigned To, Priority, Status, and Due Date. Tasks are grouped by date: 'Today' and 'Oct 19, 2017'. A right sidebar shows a 'Project' dropdown menu with options like CSGW, V2X 2017, V2X 2018, V2X CES, Karamba, and Karamba FCA. At the top right of the task table, there are summary counts: New(44), In Progress(4), Resolved(2), and Closed(3).

Task Manager

+ Add New Task

New(44) In Progress(4) Resolved(2) Closed(3)

#	Title	Assigned To	Priority	Status	Due Date
Today					
47	Setup Bench	Bryant	High	In Progress	Feb 02, Fri
Updated by Bryant Today 11:11 am <input checked="" type="checkbox"/> V2X 2017					
48	Develop AM Tests	Bryant	High	In Progress	
Updated by Bryant Today 11:13 am <input checked="" type="checkbox"/> V2X 2017					
51	Define tests for Voice R...	Charles	High	New	Jan 31, Wed
Created by Bryant Today 11:52 am <input checked="" type="checkbox"/> V2X CES					
Oct 19, 2017					
28	VP2.BT.3 Identify PIN Code Nik		Medium	New	Jan 30, Tues
Updated by Bryant on Oct 19, 2017 10:01 am <input checked="" type="checkbox"/> V2P FCA					
29	VP2.BT.4 Blind Pairing Nik		Medium	New	Jan 30, Tues
Updated by Bryant on Oct 19, 2017 10:02 am <input checked="" type="checkbox"/> V2P FCA					

Dashboard > Task Manager > All

Project

- All
- CSGW
- V2X 2017
- V2X 2018
- V2X CES
- Karamba
- Karamba FCA

Screen Mockup: Incident Tracker

APTIV | Guest

Dashboard > Incident Tracker > Grid View

Incident Tracker > Grid View

Incident Name	Contact Name/ Email	Products(s)	Product Line	Creation Date	Download Attachments	Description	Severity
Incident1	Jane Doe, jane.doe@aptiv.com	V2X 2018, V2X 2017	AD OEM	1/23/18	Download		High
Incident2	Jane Doe, jane.doe@aptiv.com	V2X CES	AD OEM	6/21/17	Download		High
Incident3	Jane Doe, jane.doe@aptiv.com	V2X CES	AD OEM	3/13/17	Download		High
Incident4	Jane Doe, jane.doe@aptiv.com	CSGW	C&S	3/13/17	Download		High
Incident5	Jane Doe, jane.doe@aptiv.com	V2P Ford	UX	12/20/17			High
Incident6	Jane Doe, jane.doe@aptiv.com	V2X FCA, V2X CES, V2X 2018	AD OEM	1/10/18	Download		Medium
Incident7	Jane Doe, jane.doe@aptiv.com	Karamba Carwall	Safety	8/2/17			Medium
Incident8	Jane Doe, jane.doe@aptiv.com	V2X 2018, V2X 2017	AD OEM	9/17/17	Download		Medium
Incident9	Jane Doe, jane.doe@aptiv.com	CSGW	C&S	11/12/17	Download		Medium
Incident10	Jane Doe, jane.doe@aptiv.com	Karamba Carwall	Safety	12/13/17	Download		Low
Incident11	Jane Doe, jane.doe@aptiv.com	V2P Ford	UX	8/7/17			Low

Main Navigation:

- Dashboard
- Products
- Tasks
- Pending Requests
- Threat Tracker
- Vulnerability Tracker
- Incident Tracker
 - Grid View
 - Visualization
- Mitigation Tracker
- Register a Product
- Report an Incident
- Calendar
- Help
- Settings

Sort By:

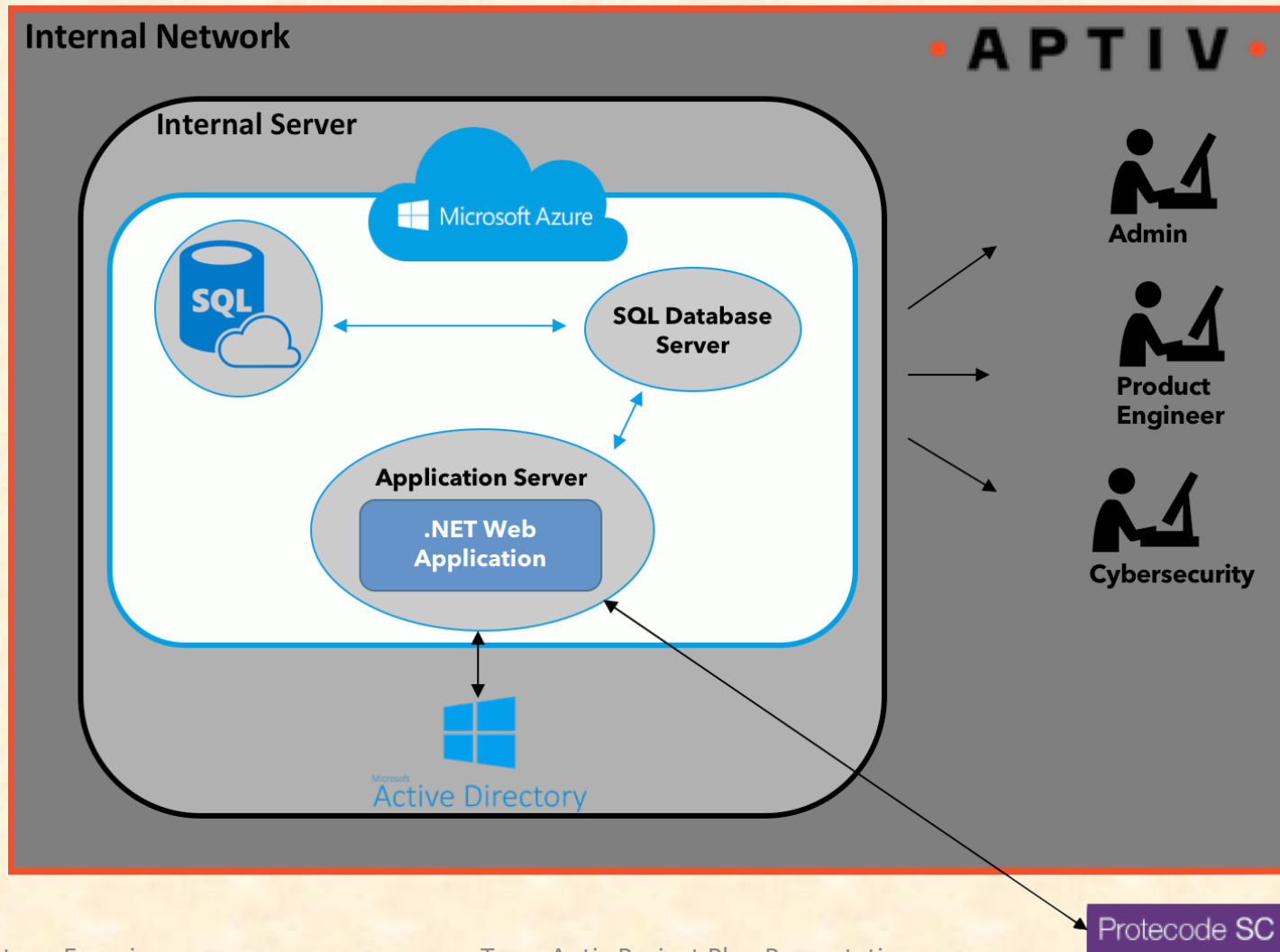
- Product
- Product Line
- Contact
- Creation Date
- Close Date
- Severity

Technical Specifications

- Microsoft Active Directory
 - User authentication to define role in system
- Microsoft Azure
 - Hosting SQL database and web application
- Many-to-many Database
 - Stores all cybersecurity data input into system
 - Used for tracker visuals and analysis
- Protecode API
 - Detect vulnerabilities in source code



System Architecture



System Components

- Hardware Platforms
 - Microsoft Azure server
- Software Platforms / Technologies
 - Visual Studio
 - ASP.NET (C#)
 - Javascript
 - HTML/CSS
 - MS SQL Database
 - Microsoft Active Directory
 - Protecode API
 - Jenkins

Risks

- Application Security
 - Application/Database will hold all of Aptiv's data (schematics, software, vulnerabilities, etc.) for all products
 - Mitigation: Implementing best practice security measures as the system is developed, and perform dynamic code analysis on code developed using Protecode
- Database Implementation
 - Application uses complex data structures and holds vast amounts of data
 - Mitigation: Proper schema created and implemented to ensure only those authenticated can access data and the data is quickly accessible
- Knowledge of Client Procedure
 - To fully design the functionality for the application a complete understanding of all of Aptiv's cybersecurity processes, inputs, outputs, and integration is needed
 - Mitigation: Weekly conference calls with client and constant communication if needed allows for questions and clarifications on project model
- Scalability
 - Aptiv has 147,000 employees and develop hundreds of products a year; the application must be able to handle hundreds of users logged in and accessing data
 - Mitigation: Application hosted on Microsoft Azure, MS SQL database hosted on Microsoft Azure; cloud servers have ability to scale immediately and automatically

Questions?

?

?

?

?

?

?

?

?

?