Company Merger

Infrastructure Integration Project

Deliverable 4: Data Modeling and Starting Design

IS 436

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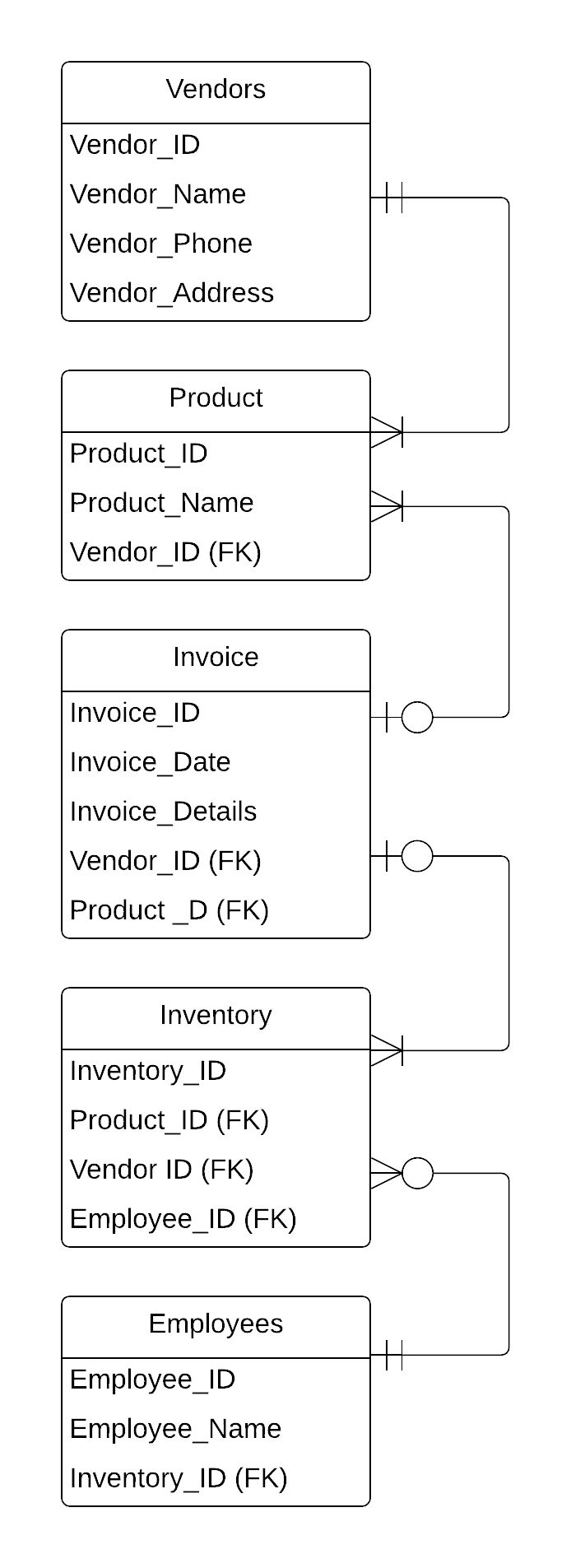
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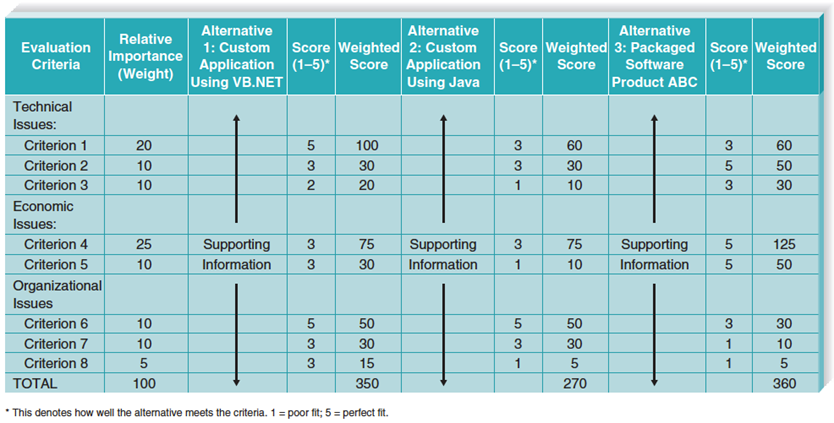
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1) Develop a data model by **drawing an Entity-Relationship diagram** using Visio, Lucid Charts (or any drawing tool) The model will be accompanied by a textual description of entities and relationships. The diagrams should closely follow the notation. Make sure that the model is in the third normal form.



2) **Develop an alternative matrix** for your project. You must also **provide a description of each of the alternatives that you have chosen.** Each member of the team will rate the three alternatives independently. **Include each individual matrix with the deliverable.** The team will then come together on a consensus, creating a **team matrix**. Include this team matrix with the deliverable. **Provide a narrative for the justification about which alternative was picked by your team**



**---- EXAMPLE FROM CHAP 7-------**

**Link to Template of Matrix. Make changes to this.**

[Simplified Decision Matrix](https://docs.google.com/spreadsheets/d/1RIsw7rVS3FSKij5um7IvmS5o4KHSx8qknUTeyqOrXaA/edit?usp=sharing)

3) **Design the architecture of the system by to developing a matrix** . In its rows, this matrix should clearly list the **non-functional requirements of your project under four main categories: Operational, Performance, Security, and Cultural/Political** requirements. In its columns, the matrix should include the **architectural options (i.e. server-based, client-based, thin-client server, thick client server).** If a particular architecture is good for any requirements put a check mark in the corresponding matrix cell. This matrix should be accompanied by a narrative that talks about why particular architectures are a good fit for particular non-functional requirements. Based on this matrix, **make a decision of the system architecture and explain the justification. Mention the trade-offs and the reasoning behind your decision. After that, develop a Hardware and Software Specification. Note that your specifications can include different server and client configurations.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Non-Functional Requirements** | **Server-Based** | **Client-Server Based** | **Thin Client-Server** |
| **Operational Requirements** |  |  |  |
| **Systems Integration Requirements** | **✔** | **✔** | **✔** |
| **Portability Requirements** |  | **✔** | **✔** |
| **Maintainability Requirements** | **✔** |  |  |
| **Performance Requirements** |  |  |  |
| **Speed Requirements** |  | **✔** | **✔** |
| **Capacity Requirements** |  | **✔** | **✔** |
| **Availability/Reliability Requirements** | **✔** | **✔** | **✔** |
| **Security Requirements** |  |  |  |
| **High System Value** | **✔** | **✔** | **✔** |
| **Access Control Requirements** | **✔** | **✔** |  |
| **Encryption/Authentication Requirements** |  | **✔** | **✔** |
| **Virus Control Requirements** | **✔** |  |  |
| **Cultural/Political Requirements** |  |  |  |
| **Multilingual Requirements** |  | **✔** | **✔** |
| **Customization Requirements** |  | **✔** | **✔** |
| **Making Unstated Norms Explicit** |  | **✔** |  |
| **Legal Requirements** | **✔** | **✔** | **✔** |

**Client-Server Architecture is most compatible with our design.**

**Server Based:**

Includes no additional client used only terminal and server computer. Using a virtual desktop infrastructure provides benefits with security requirements as it handles storage and logic fairly well. However there are downsides in terms or performance and cultural/political requirements. There are disadvantages in our integration since clients are needed to make changes whether its based on DB management or client requests.

**Client-Server Based:**

A balanced process between client device and server devices. This implementation seems to work the best with our architecture since clients are responsible for logic and decision making while the server is responsible for data access/storage. In our architecture our clients make requests based on our database storage which is stored using server (to be cloud based). This model satisfies most of the requirements from security since it is highly reliable, performance, operational, and a common cultural/political requirements.

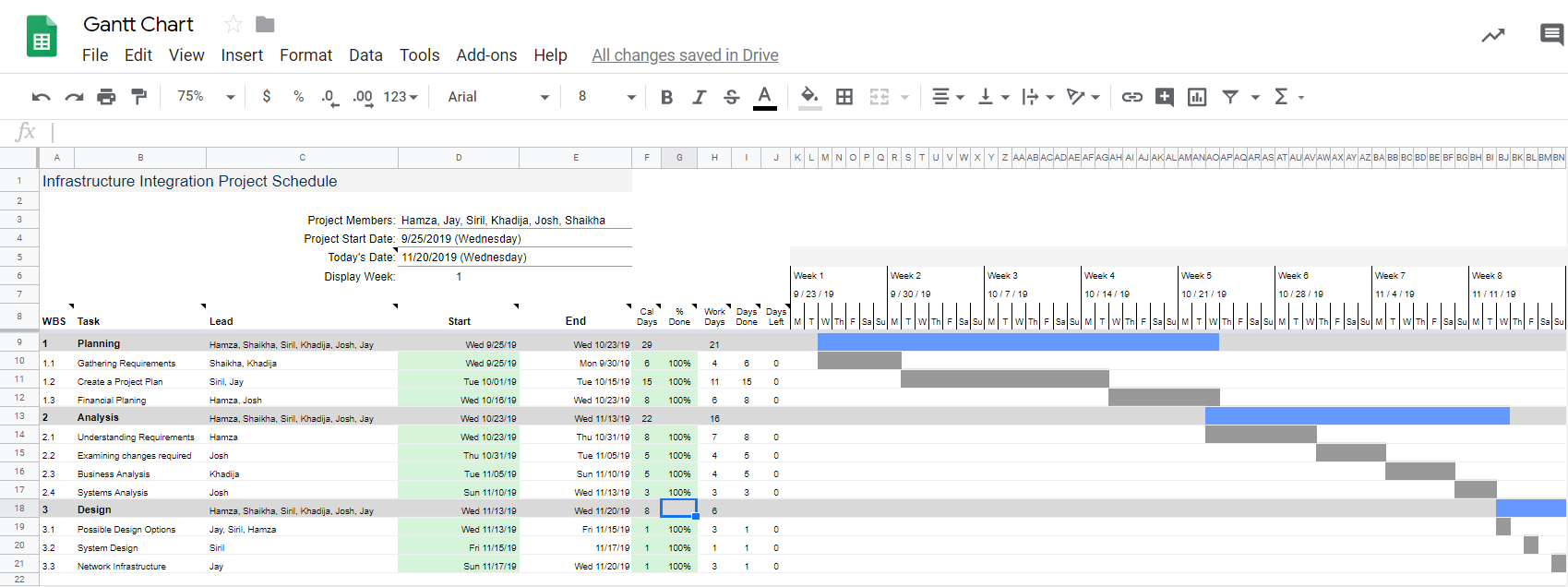
**Thin Client Server:**

Similar to client server but doesn’t cover all the aspects that a typical client-server based architecture would. Does not cover all the cultural/political requirements and security requirements, but satisfies most of the performance and operational requirements.

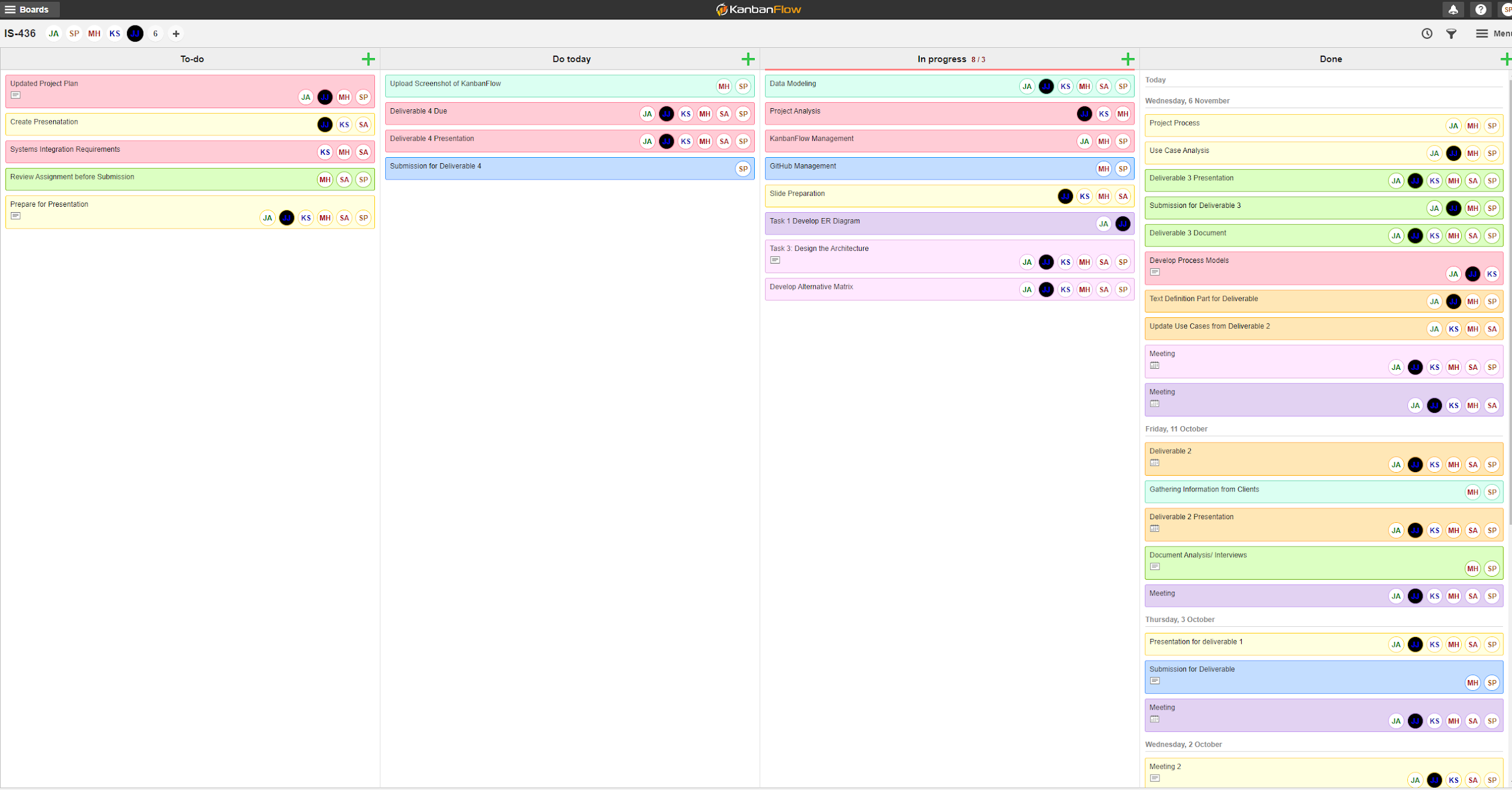
**Hardware/Software Specification**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Standard Client** | **Standard Web Server** | **Standard Application Server** | **Standard Database Server** |
| **Operation Systems** | Windows 10 | Linux | Linux | Linux |
| **Special Softwares** | - Adobe Acrobat Reader/DC  -Microsoft Office  - Antivirus  - Cloud Client | Apache | Java | SAP  QAD |
| **Hardware** | HP Laptops  Intel Core i7 Processor 1TB HDD | 1TB Disk Drive | 1TB Disk Drive | 1-TB Disk Drive  RAID |
| **Network** | Always-on-  Broadband, preferred | Fast Ethernet: 100Mbps LAN | Fast Ethernet: 100Mbps LAN | Fast Ethernet: 100Mbps LAN |

4) Include your updated project plan.



5) On Kanban board assign the requirements to your team members



6) System Integration .Please follow the instructions provided on https://userpages.umbc.edu/~ss12/IS436/content/groupproject/group.html under system integration section