**Technical Approach**

This section discusses how you will obtain the objectives presented in the previous section. This plan should follow a logical sequence. Please make sure that you have a transition paragraph between the heading “Plan of Action” and the subheading “Identifying Customer Needs.”

**Identifying Customer Needs**

The customers for this design are perspective students, current students, and staff since all these individuals interact with many pages under the Trine domain.

For current and perspective students, we have personal experience from each of the five team members. This personal experience leads us to the conclusion that pages under the Trine’s domain are too loosely connected and thus information is difficult to find since a search directed at a single point will not return results from all pages under Trine’s domain. As former perspective students and current students, we identify that we need a search engine for Trine’s domain that will return relevant results in a quick manner.

For staff members at Trine, we will need to conduct an informal survey to determine if the needs we perceive as students match the needs of the staff. The gathering of this information will primarily be done through conversations held with certain staff members.

**Identifying Target Specifications**

The first specification to target is the searching mechanism. This specification is targeted by creating JavaScript code that allows communication between the website, the host, and the server database. This code will allow users to provide input and receive a few pages of search results.

The second specification is the calculation of results within one second. This is targeted by creating a lightweight ranking algorithm that will allow results to be calculated quickly on the server side. Compromise will need to be made between relevancy and speed. Since the scope requires that results be returned quickly, relevancy of search results may reduce to allow for quicker computation.

The last specification to target is the ability to access the service from the internet. This can be accomplished through the used of a Domain Name Service. This can either be done by using our server to host not only the database, but also the website. This would require the purchase of a domain name. The other option is to use a cloud service that provides the domain.

**Generating Design Concepts**

The concept generation process included research, discussion, and some experimentation. Team members each did research to grasp the concept of search engines and how one could be designed. Following that process each member provided their own design concept that would meet the scope of the project.

After the initial concepts were generated, with team held a meeting in which the concepts were refined or rejected by the team. After the concepts were narrowed and refined, it was discovered that two primary concepts remained.

The first concept was to hold all resources on premise. This would require the server to not only house the database, but also require that the server host the website. Additionally, a domain name would need to be purchased so that the website could be accessed on the internet.

The second concept was to make used of the Azure cloud service. This would allow the website to be hosted on the Azure platform where the complications of making the website accessible are mitigated. This concept would require communication between the Azure service and our on-premises server since it was determined that the cost of hosting the database in the cloud would not be acceptable.

**Selecting Design Concept**

The process of selecting a concept was done through a team meeting in which we weighed the benefits and drawback of the two design concepts that were presented in the last section, “Generating Design Concepts”.

The team decided to select the Azure cloud-based hosting concept as the primary choice. The major benefit of this design was that hosting the site was made easier by adopting the service. As a result of this, the project is made easier to quarantine if the Coronavirus force our team off campus. This is because we do not need to worry about which internet service provider would. This way, contracts that would not need to be resolved to make our website accessible. it was also determined, though research, that it was indeed possible to connect our cloud service to our on-premises database.

Our alternative concept, should the primary one become infeasible, is the fully on-premises approach. This approach would not make use of the Azure service as describe in the previous section, “Generating Design Concepts”.