Team Code X has decided to bid for the following prizes:

1. Innovation
2. Architectural Awareness
3. Software Engineering Excellence

Innovation

The Code X project brings forth innovation in the way the solutions to the problem at hand was solved.

The problem at hand was one dealing with Big Data – handling large amounts of data on a system whereby users could be able to search for products, and attain results at fast speeds, yet still maintain the integrity of the data, as well as producing the right results in time.

The team incorporated the use of a pattern database, named *Zizo*, into the system to achieve the effects the client was looking for.

Furthermore, the user can customize the queries to their needs, and can be used with a variety of languages and platforms such as Java and .NET.

Our system produced the basic functionality of an effective search, maintaining scalability and speed, while keeping searches effective and efficient, also keeping costs at a minimum.

Architectural Awareness

Our system incorporated three architectural styles, which are as follows:

- Cloud-based Architecture: This architecture consists of a front-end, back-end, cloud-based delivery, and a network, of which our system aligns to. Our system is combined with the client as front-end, the database and servers as back-end, and the network. The delivery platform used was the Software as a Service service-model (SaaS).
- Representational State Transfer (REST) Architecture: This pattern is one used for designing networked applications, with our system making RESTful calls to retrieve product data from the Master file found in the database.
- Service Oriented Architecture (SOA): Our system heavily depends on this architecture as it provides a service and shines light on the components of the SOA such as

possessing a GUI for end users, the representation of use cases, reusable components (functional libraries), [a] data repository(ies), and technological platforms.

The aim was to keep the system as easy flowing as possible, avoiding the use of structures a that could possibly slow down the system, for instance, deciding against the three-tier Client-Server architecture, which could essentially create overhead due to the addition of a Business Logic Layer. Scalability was a major factor for this project, and thus the architecture(s) were carefully picked.

For more information, one can access our documentation on Code X's Github Repository.

Software Engineering Excellence

It is no secret that Code X has faced its fair share of challenges throughout the course of the COS 301 Capstone project. Code X received a specification which had to be carefully incorporated into the Software Engineering Process adequately due it's vagueness, both satisfying our client, as well as the lecturers, requirements of the module and SE process as a whole. Irrespective of the stated, Code X has nonetheless been able to bypass the struggles and keep moving forward as a team.

We stuck to allocating work among members as each was capable and fair, maintained our weekly meetings and sprints as required, kept ourselves in check as much as was possible, both online (WhatsApp, Waffle etc.) and offline. The team as well incorporated the use of effective documentation of all forms, to keep us aware and in the loop of what was required of us, so not to waver from the goal we needed to achieve as a team.

Additionally, this team is a true image of what a team in the real world is likely to face. In an environment where one is likely to work with unfamiliar faces, and people with various experiences yet still produce effective results, it's safe to say that Code X has achieved well, giving our best and keeping our client happy, while growing strong, learning lessons and gaining adequate experience in the process, possibly achieving success as a result.