

5 Professionalism USE ACM CODE

This discussion is with respect to the paper titled “Contextualizing Professionalism in Capstone Projects Using the IDEALS Professional Responsibility Assessment”, *International Journal of Engineering Education* Vol. 28, No. 2, pp. 416–424, 2012

5.1 Areas of Responsibility

Pick one of IEEE, ACM, or SE code of ethics. Add a column to Table 1 from the paper corresponding to the society-specific code of ethics selected above. State how it addresses each of the areas of seven professional responsibilities in the table. Briefly describe each entry added to the table in your own words. How does the IEEE, ACM, or SE code of ethics differ from the NSPE version for each area?

Area of Responsibility	Description	ACM addresses
Work Competence	Doing high quality and effective professional work	2.2 Acquire and maintain professional competence - taking responsibility for maintaining competence, continuing to learn and meet high standards.
Financial Responsibility	Products provide value for their reasonable cost	Responsibilities to Employers: professionals should not have any conflict of interest and be loyal to their employer to provide value.
Communication Honesty	Progress is communicated honestly to stakeholders. No deception.	2.6 Parties have the obligation and responsibility to keep that party properly informed and involved for that work.
Health,Safety, Well-Being	Ensure safety and health	Moral Responsibility - responsibility is shared for safety of a product by all individuals collaborating
Property Ownership	Respecting other’s information	1.2 Avoid harm to others, including their property. 1.5 honor property rights including copyrights and patents.
Sustainability	Protect the environment	1.1 1.2: computing professionals shall design and develop systems alert to any environmental damage - avoiding harm to any unwanted environmental impacts.
Social Responsibility	Product provides some value to society	2.7/3.2: Improve public understanding of computing and its consequences - share technical knowledge with the public.

5.2 Project Specific Professional Responsibility Areas

For each of the professional responsibility areas in Table 1, discuss whether it applies in your project's professional context. Why yes or why not? How well is your team performing (High, Medium, Low, N/A) in each of the seven areas of professional responsibility, again in the context of your project. Justify.

Work Competence - HIGH

Work Competence is a major part of our project as individuals and teams who accept personal and collective responsibility for gaining and sustaining professional competence are essential. We as a team would develop and enhance our skills to meet the project requirements to deliver an optimal product. Doing solo research and attendance at team and client meetings is essential to showcase work competence. Our team encourages and facilitates these activities. Our team is at a High rating for work competence because it is absolutely essential for the development of our deliverables.

Financial Responsibility - MEDIUM

While financial responsibility is not a major part of our project, it is applicable in a few regards. The primary aspect is ensuring that we do not knowingly implement a suboptimal solution when a better solution is possible and realistically doable. Implementing a suboptimal solution would not be providing our best work and would be depriving our mentor of a more desirable final product. Additionally, such a solution could require a more expensive server in order to be efficient. Such an expense would not be financially responsible when optimizations could realistically be made to bring the cost down.

Our team is currently at a medium rating for financial responsibility, mainly because we have not done much in regard to actual implementation. As such there haven't been any decisions that carry financial weight so claiming high rating would not necessarily be fair, but it is something that is on our mind as our project centers on optimization so we are always trying to get the most out of as few resources as necessary.

Communication Honesty - HIGH

Communication honesty will be a very important part of our project. Considering that we're a large group, consistent organization of roles and assigned tasks is critical in preventing discredit of intellectual property. In addition, we need to be careful in honoring the property rights of any software we research and use that's not ours. In terms of trust, a large team like ours needs to have trust that we can each complete the tasks that we assign for ourselves. And then finally, it's important that we do our best not to discriminate or tolerate discrimination on the basis of race, sex, religion, age, disability, national origin, or other such factors.

Health, Safety, Well-Being - MEDIUM

Health and safety are definitely important for our project to manage the risks and protect our user's products. As many other projects or workplaces, users need to feel safe when they are

using a certain product. Health and safety are not only to ensure that we gain our users' trust, but it can also lower any extra cost that might accrue due to any damage or loss for the products.

Since we haven't done any actual implementation yet, I would say our group is on the medium range for this responsibility. We have been mostly working on research and deciding on what platforms we will be using, but health and safety is very important and will be considered when we start implementing our design.

Property Ownership - HIGH

We as a team are cognizant of not harming individuals or corporations in terms of unjustified physical or mental injury, unjustified destruction or disclosure of information, and unjustified damage to property, reputation, and the environment. It is of HIGH importance to our team. We are devoted to apply the best practices everywhere needed. If a conflict of property rights arises, we shall work towards resolving it in a non-hostile manner. If we may need to use or incorporate any individual's or corporation's property, we shall do it in the most ethical manner possible.

Sustainability - MEDIUM

Sustainability is directly tied to our goal. The more optimized the initial routes and new routes are, the less time the trucks will be on the road. This means less carbon emissions from the trucks. Additionally, if our algorithms are optimized, they will run for shorter periods of time, meaning less electricity is used. So, our project by definition is geared toward sustainability.

The reason for the medium rating is that we have not currently done much work that is directly tied to these related processes. Most of our effort has been on research and selecting the external APIs, tools, and languages that will be used to implement our design. Our rating for this category should increase to high once development has started.

Social Responsibility - MEDIUM

As computer professionals, it is our team's responsibility to share technical knowledge with the public, foster awareness of computing, and encourage understanding of computing. It is our responsibility to communicate with individuals outside our group and the communication should be clear, respectful, and welcoming. Important issues that shall be discussed include the impacts of computer systems, their limitations, their vulnerabilities, and the opportunities that they present. Our team accepts the associated social responsibilities that includes - reduce harm to the public and raise awareness of the influence of our product in the relevant areas and businesses.

5.3 Most Applicable Professional Responsibility Area

Identify one area of professional responsibility that is both important to your project, and for which your team has demonstrated a moderate or high level of proficiency in the context of your

project. Briefly describe what this responsibility means to your project, the ways in which your team has demonstrated the responsibility in the project, and specific impacts to the project that you have observed

Sustainability on professional responsibility is both very important to our project and one that we have been conscious of, be it indirectly. This responsibility is important to our project because it is one metric by which we could measure success. The more optimized our algorithm, the less electricity and gasoline will be used. We have demonstrated responsibility in this regard by exploring several possibilities for optimizing our routing algorithm. We have looked into implementing algorithms from scratch as well as using existing external APIs and tools. Optimization has been a priority during this process, but so has ease of implementation. Both of these are correlated to sustainability because while a highly optimized algorithm will definitely lead to short routes and thus higher sustainability, if the implementation is difficult and requires much longer to thoroughly implement and test, the net gain might not be as high as anticipated. Additionally, there is no guarantee that an algorithm implemented from scratch that is theoretically more efficient will be more efficient in practice. In such an instance, it is likely better to go with an existing implementation that has been tested and/or optimized by several other developers. This particular issue has impacted our project by pushing us to go with an existing service in Mapbox because it is proven and we are less likely to waste resources implementing an algorithm that may or may not be better.