

1. Introduction

1.1. PROBLEM STATEMENT

“Ask Captain Cyber” is an AI-powered chatbot that focuses on cybersecurity. This allows users of different levels of understanding to ask questions and receive answers they can understand. Users can take assurance that the answers are correct as each answer will be vetted by a cybersecurity expert.

As the world becomes more interconnected there are more cyber security threats than ever before. Users need a reliable way to get information about cyber security issues they may be facing. This could involve basic IT questions, how to setup up IoT devices, or how to secure or defend against cyber attacks. Cyber crime is rising on all sides and anyone can be a target. This is especially true with younger and older people who are more susceptible to scams. Captain Cyber will help to fix this problem by providing a reliable source of information for people to address these questions. Cybersecurity has become very bloated with a lot of information and it can be very hard to find what you are looking for. Captain Cyber will simplify this process so that even beginners can understand cyber security.

IoT devices have become a growing cyber security threat. Many more people are installing IoT devices to connect their lights, homes, phones, cars, and more. These are prime targets for hackers and are big cyber security threats. From hacking security cameras, spying through your webcam, hijacking a smart car or smart house, and hacking your smart fridge. A lot of these IoT devices can have a lot of vulnerabilities that will be unknown to the average user. This is because IoT devices have limited space, and can be hard to update. This leads to an increase of vulnerabilities and poor programming practices. Captain Cyber can help users install, configure, and fully understand the security risks and vulnerabilities that might come with these devices.

Ask Captain Cyber will have cyber security experts vetting answers. This means that if a question is not already in the database, it will give a preliminary answer, while a professional answers the question. This is to ensure that the answers are truly legitimate. Modern day AI has a problem where it is hard to figure out if the information they are saying is accurate. Users can ask for sources, but there is no actual guarantee the AI is summarizing the information correctly. Ask Captain Cyber fixes this problem by relying on industry experts who have years of experience in the industry. Captain Cyber will also have a process to re-evaluate already known answers. This is because cyber security is an ever growing and evolving field. So this method makes sure the information is up to date. It is essentially an open source page for tons of cyber security information, where we hope there are enough people who are passionate and want to update and help to answer users' questions.

The final aspect of Ask Captain Cyber is that it must be easy and versatile to use. Users with little experience and cyber security knowledge should be able to use it and get the answers they need. People who might ask more advanced questions like college students, should also be able to use it to get good information and resources. Finally experts should be able to both contribute and be able to ask more high level questions. In conclusion, Ask Captain Cyber will be a vetted AI platform where any user can get the cyber security questions answers from a trusted and reliable source.

1.2. INTENDED USERS

Any person with an internet connection and an interest in cybersecurity should be able to utilize Ask Captain Cyber. We have divided all of these users into three general groups: absolute beginners, cyber enthusiasts with above-average knowledge and interest, and experts who have specialized knowledge in cybersecurity. The beginners and enthusiasts will benefit from gaining knowledge by asking questions to Ask Captain Cyber which should promptly reply with accurate information. Anyone on the internet will be able to access Ask Captain Cyber considering it is a public-facing website hosted on ISU's servers.

Absolute beginners will have little to zero knowledge regarding anything cybersecurity related. This would describe the average person, who's interest in cybersecurity would be relatively small. Their needs for this project would be to ask very simple questions to Ask Captain Cyber. Ease of use for the website would likely also be their top need for this project. Making this project intuitive and easy to use would encourage the user to ask more questions, whereas having a poorly designed website would likely frustrate the user and turn them away from the website. This product would be able to give them the basic cybersecurity knowledge they desire and can actually utilize in their daily life (i.e. how complex should a password be, what is a VPN and how can I use one, etc). This directly correlates to the problem statement by providing a vehicle to deliver cybersecurity knowledge to those who do not know much about cybersecurity but want to learn more.

Cybersecurity enthusiasts will have more knowledge regarding cybersecurity than the average person. This would include cybersecurity students, those who are just entering the industry, etc. Their needs for this website would be to ask more detailed cybersecurity questions and obtain more advanced responses. The responses would involve more detailed terms and concepts as well as including resources to scientific/research articles. This group of users would likely need the answers to be very accurate, which is the purpose of the answer vetting done by the experts. Accuracy of more detailed responses is a high priority of the project. This correlates to the problem statement since the project provides knowledge to all levels of cybersecurity users, including those who have more intricate questions they may utilize in their studies or even the workspace.

Cybersecurity Experts will be the subject matter experts and the highest authority regarding Cybersecurity issues. This includes senior professionals who have been in the industry for a long time and principal security engineers who serve on Cybersecurity standard committees. Experts will serve as ambassadors for Captain Cyber and will be the ones vetting questions and responses from the tool. Experts will strive to make sure responses are relevant and technically accurate enough to satisfy the enthusiasts and ensure answers are accessible to the beginners/average user.

2. Appendices

2.1. EMPATHY MAPS

