IT 343 – DL1

October 6th, 2023

Yannis Eyob

Eran Harris

Mahmoud Elarag

Jordan Hutcherson

**Project Charter**

Keylogger Security Software Completion Project

B. **Project Overview**

The proposal of the project is to develop keylogger software that will successfully collect the keystroke data of a user. Once completed, the software will be available for companies to purchase. Our company is well known for its quality software and hardware. With the development of the keylogger software, we will be able to provide clients with trustworthy and user-friendly security that will assist in preventing internal threat actors. Our keylogger software will put our clients and their employees at ease, allowing them to focus on the other aspects of their business instead of worrying about their data being exploited This endeavor will positively impact our company as well as the project is fully expected to be profitable.

C. **Project Scope**

Objectives:

Primary objectives of the Keystroke keylogging software project are aiming to improve the functionality of companies current monitoring software and hardware without compromising the employee's privacy. To implement robust security measures to ensure the protection of data and prevention of unauthorized access by reducing the risk of illicit exploitation. To provide information of client’s behavior and productivity through time tracking, including regular screenshots and monitoring of most used/most searched applications and websites.

High-Level Requirements:

Encompasses the development of enhanced monitoring and security features with the focus on robust security measures, time tracking of productivity and behaviors, and report back and analytical tools. The software should be capable of accommodating numerous organizational sizes and of providing compatibility with organizations’ existing hardware and software systems. The software must comply with legal and ethical standards and perform its tasks without interfering with the employee’s productivity. The software should be easy to use and maintain.

Major Deliverables:

Developing an upgraded monitoring system. Installation of upgraded keylogging software into businesses’ devices and servers. Maintenance and testing of new software to provide performance. Training for IT personnels to learn ethical practices and maintenance schedules.

Project Boundaries/Exclusions:

The project will not encompass detailed configurations and customizations, unless the keylogging software needs to be arranged specifically for the client’s needs. There will not be changes made to the existing hardware and software and further assessment of different hardware and software will be necessary for the keylogger software updates.

D. **Project Duration**

Timeline:

It would take approximately one week to create a fully functioning keylogging software system. First, we would use Python to create our software. Second, we would be creating the code. Third, we would test the code to make sure it is fully functioning and add tweaks if needed. For the last step we would do a massive test on a bunch of computers with the keylogging software and make sure that it is doing what is intended and it is adaptable to any system.

Major Milestones:

For our major milestones we would be creating the idea of our software and what its intended use is. We would want to map out how our program should be used and how to manage it properly and then we would want to come up with a design revolving around time theft and data leaks that would harm the company. That would be our primary focus along with not using time management programs since this software would be an all-in-one package. We want to make sure we offer a lot of features in our software so that companies can feel like they are getting a great deal along with value for their money and time spent.

E. **Budget Estimate**

One-time costs:

* Paying the developers, possible advertising, disk/thumb drive for the software

Recurring cost:

* Updating the software, fixing bugs/finding bugs or errors, advertising.

Identification of cost categories:

* We would not have to pay for Python since it is free, we would be paying programmers for the cost of creating the program and maintaining it.

F. **Project Assumptions/Constraints/Risks**

Assumptions:

The successful development of Keystroke's keylogger software assumes rigorous adherence to legal and ethical guidelines governing employee monitoring. It relies on clients providing informed and explicit consent for the software's deployment, acknowledging its purpose and functionalities. Furthermore, the assumption rests on the availability of skilled developers capable of meeting the technical challenges involved and ensuring the software's compatibility across diverse operating systems and hardware configurations. Additionally, there is an expectation that the software will meet client expectations in terms of functionality, usability, and security, thereby ensuring client satisfaction and successful adoption.

Constraints:

In addition to the strict project deadline of 11/23/23, Keystroke faces additional constraints. One such constraint involves budget limitations, necessitating efficient resource allocation and careful financial planning to cover development costs and potential marketing expenses. Another constraint lies in the software's hardware requirements, as it must run seamlessly on existing computer systems without necessitating substantial upgrades, ensuring compatibility with clients' current setups. Moreover, there is a constraint related to data privacy and security, requiring rigorous measures to safeguard collected information, preventing unauthorized access and data breaches.

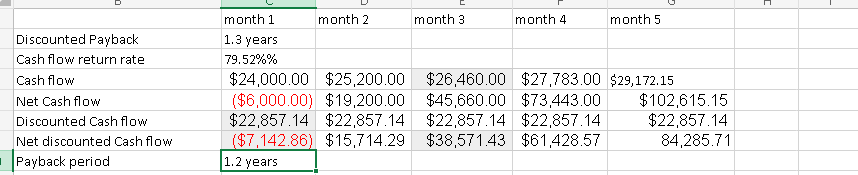
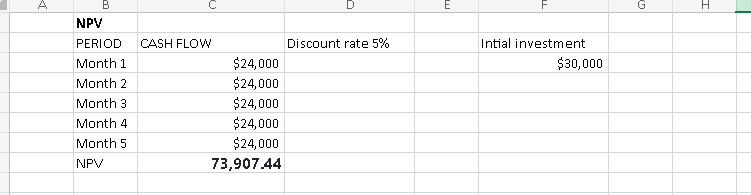
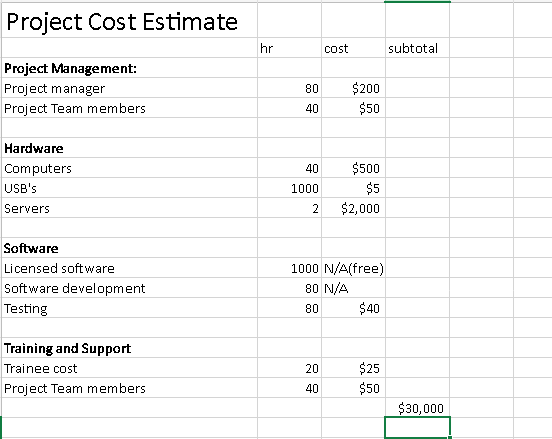
Risk Analysis:

Several potential risks surround the development of Keystroke's keylogger software. Legal and ethical risks persist due to privacy concerns, demanding regular legal consultation and compliance checks to avoid legal consequences. Technical challenges may arise in ensuring compatibility across diverse platforms, requiring continuous and comprehensive testing to identify and address issues promptly. Client acceptance remains a risk factor, emphasizing the need for client involvement during development to adapt the software based on their feedback. Data security risks necessitate robust encryption and security protocols to prevent unauthorized access and breaches. Budget constraints and hardware compatibility further pose challenges, demanding careful financial planning and technical optimization to overcome these limitations effectively. Lastly, the ever-changing regulatory landscape poses a risk, requiring the team to stay updated on laws related to employee monitoring, ensuring ongoing compliance and necessary adjustments to the software.

**Project Cost Estimates**

Financials:

1. We would either do a subscription-based payment. For example, if the fee for the keylogger software is 5$ and we have 100 employees, we would have to pay 500$ dollars a month for using that employee tracking system. Or we could make a one-time payment, which would be a large payment up front, saving more money in the long run if we are running a lot of software on different computers, since it will be a long-term commitment, this could be a better choice. There are two options for terms of deployment and data storage (Cloud and on-premise (Self-hosted). Depending on the software company they could offer one or the other or both, but the software company usually gives you a choice of whether you want a cloud or an on-premise solution. Self-hosted is more expensive, because there's the extra cost of implementing the employee tracking system on your own servers. Features: Depending on the system, what functionalities it has is going to cost more. We would base it on our needs, so that is something we can discuss. Support for the software: If it is cheap low budget software it will offer only customer support through online forms or chatbots. It will cost more to have a human connection, phone or priority email or even a dedicated agent. Number of employees: Price will depend on how many employees there are due to each instance that will be installed on the computers. We could offer special discounts for enterprises if they have a large number of employees. We would be selling this product/software to multiple companies for a a large amount of cash flow.



**Deliverable 3**

**Project Scope Management**

Title

Keylogger Security Software Completion Project

Project Summary and Justification

Our goal for the project is to develop keylogger software that will successfully collect the keystroke data of a user. Once completed, the software will be available for companies to purchase. Our company is well known for its quality software and hardware. With the development of the keylogger software, we will be able to provide clients with trustworthy and user-friendly security that will assist in preventing internal threat actors. Our keylogger software will put our clients and their employees at ease, allowing them to focus on the other aspects of their business instead of worrying about their data being exploited This endeavor will positively impact our company as well as the project is fully expected to be profitable.

Product Characteristics and Requirements

Includes the cultivation of advanced monitoring capabilities with an emphasis on formidable security practices, real-time tracking of user behavior, along with reporting and analytical tools. The keylogging application needs to be easy to use and maintain. It also needs to be able to be adaptable to organizations regardless of their size as well as function with their existing devices and applications. It is additionally imperative that the software is compliant with legal and ethical standards of the industry. The keylogger should perform its tasks without hindering employees’ ability to do their jobs.

Summary of Project Deliverables

The first part of this project deliverable included our decision to develop keylogger software. We came up with a business case outlining our reasoning and goals for the software. For the second part of the deliverable, we crafted a project charter for our keylogger software. In the charter, we elaborated upon the project, its scope, duration, constraints, and risks. Additionally, we developed a detailed document for the estimated project budget. In our final deliverable, we will deliver a project management plan. The plan will contain our approaches to the various project management knowledge areas. A prototype of the keylogger will be presented as well.

Project Success Criteria

The success of the project will be based on a variety of factors. The ability to complete the keylogger software while remaining within the allocated scope, time, and cost of the project is one of the criteria for success. The functionality of the software as well as customer satisfaction are also considered into our view of the project’s success. Also, the amount of profit that our product generates is a major aspect of whether the project is a success or not.

Project Time Management:

|  |  |  |
| --- | --- | --- |
| **Task** | **Start** | **End** |
| **Development of Keylogger Software** | **12/4/2023** | **1/29/2024** |
| **↳** **Initial Hire** | **12/5/2023** | **1/25/2024** |
| **↳** Company Project Manager | 12/5/2023 | 1/25/2024 |
| Senior Software Developer | 12/5/2023 | 1/25/2024 |
| Cybersecurity Engineer | 12/5/2023 | 1/25/2024 |
| **↳ Meeting Assignments** | **12/5/2023** | **12/15/2023** |
| **↳** Discussing Roles | 12/5/2023 | 12/8/2023 |
| Communicate with potential stakeholders | 12/5/2023 | 12/15/2023 |
| **↳ Software Development** | **12/18/2023** | **1/12/2024** |
| **↳** Planning | 12/18/2023 | 12/25/2023 |
| Analysis | 12/25/2023 | 12/29/2023 |
| Design (Time Theft and Data Leaks) | 1/2/2023 | 1/5/2024 |
| Implementation (Python) | 1/8/2023 | 1/12/2024 |
| Testing & Integration (End Date is dependent on stakeholders) | 1/12/2024 | N/A |
| **↳ Error & Analysis & Maintenance** | **1/12/2024** | **1/26/2024** |
| **↳** Server Installation and Maintenance | 1/12/2024 | 1/26/2024 |
| Error Checking | 1/12/2024 | 1/26/2024 |
| **↳ Project Closeout** | **1/26/2024** | **1/29/2024** |
| **↳** Debriefing and concluding project | 1/26/2024 | 1/29/2024 |

Project Cost Management

Initial EVM Metrics:

Planned Value (PV): $200,000

The planned budget for the entire project based on initial cost estimates.

Earned Value (EV): $150,000

The value of work actually performed at the midpoint of the project.

Actual Cost (AC): $180,000

The actual cost incurred for the work performed up to the midpoint of the project.

Cost Performance Index (CPI): 0.83

Schedule Performance Index: 0.75

Mid-Project EVM Analysis:

Performance Assessment:

The Cost Performance Index (CPI) of 0.83 indicates that, on average, we are spending $0.83 for every $1.00 of work planned. This signals a cost overrun.

The Schedule Performance Index (SPI) of 0.75 indicates that, on average, we are achieving $0.75 worth of work for every $1.00 planned. This suggests that the project is behind schedule.

Root Cause Analysis:

Root Cause: Inefficient coding practices and lack of coordination among developers.

Impact: Increased development time and effort, leading to higher costs.

Evidence: Extended coding and testing phases compared to the initial project plan.

Root Cause: Unexpected technical hurdles during the software development phase.

Impact: Delays in coding, testing, and overall project timeline.

Evidence: Regular updates indicating challenges in specific coding modules.

Corrective Actions:

Improved Developer Collaboration:

Action: Implement regular team meetings to enhance communication and coordination.

Expected Outcome: Streamlined development process, reducing inefficiencies and associated costs.

Scope Freeze:

Action: Clearly define and communicate the project scope to stakeholders.

Expected Outcome: Prevent additional feature requests, ensuring adherence to the initial budget.

Action: Conduct a comprehensive risk assessment at the beginning of the project.

Expected Outcome: Early identification of potential technical challenges, allowing for better planning and mitigation.

Revised Project Timeline:

Action: Revise the project timeline considering potential technical challenges.

Expected Outcome: A more realistic timeline that accommodates unforeseen obstacles, reducing the likelihood of delays.

Revised Estimated Cost at Completion (EAC): 241,000

Revised Estimated Time at Completion (EAC): 266,667

Based on the EVM analysis, our project is experiencing a cost overrun and is behind schedule at the midpoint. Corrective actions need to be implemented to address these issues and bring the project back on track. Regular EVM assessments and adjustments will be crucial to ensuring the successful completion of our keylogger software

**Deliverable 1: Reflections**

Yannis EyobI

I was able to assist in the creation of the project idea, credits to Jordan who researched and came up with the project idea. I contributed to the Critical Assumption and Constraint portion of the business case. I researched the benefits of keylogger software and the possible constraints that Keystroke will come across when implementing its software into companies IT system. My team and I brainstormed how we can implement the keylogger software into companies’ devices to monitor employee’s usage. We learned that we could implement this in collaboration with a team consisting of computer technicians, cybersecurity, and network professionals to mitigate the internal threats. That way, the computer hardware and software are compatible with the keylogger software, and the professionals will assist in maintaining Keystroke’s software. What I also learned is that even though a keylogger system would help detect internal threats, it is still up to the client’s company to abide by the ethical and legal practices pertaining to employee monitoring and for the company to resourcefully collaborate to protect the collected data.

Eran Harris

My main contribution to this project was the writing of the Current Situation and Problem/Opportunity Statement (third section) for the business case. It was initially difficult for me to find the proper approach to writing the section, but after analyzing the corresponding section from the textbook template, I was able to gain some perspective. Working on this business case with the group truly helped me understand the importance of a business case for projects. It outlines the reason as well as the goals for the project. I also learned something new about keylogging along the way. I always thought keylogging only existed as malware, but it can be used as a legitimate form of security

Mahmoud Elarag

The section that I was responsible for is the analysis of options and recommendations. Working on that section in the project was a straightforward and enlightening experience. My group members did an excellent job of laying out all the essential details, making it easier for me to see the strengths and weaknesses of each option. This experience taught me the value of teamwork and how carefully considering the pros and cons of different choices can lead to better decisions. It emphasized the importance of collaboration in achieving our project goals efficiently.

Jordan Hutcherson

The section I contributed to was the introduction and the business objective. We all produced different ideas but in the end we all agreed to do keylogging software which I think was a fun choice and challenge. I produced the idea and explained how it worked and what it does, and my team members liked the idea. This project idea goes well with our majors since we do cybersecurity, and it is a new idea that has not been developed in this class it seems. I enjoyed writing the introduction and business objective since I had to come up with what our business does and offers while making sure it is a viable product in 2024. One thing I learned is that you cannot put keylogging software on any employee's computer without notifying them as it is illegal to do that without their consent.

that has not been developed in this class it seems. I enjoyed writing the introduction and business objective since I had to come up with what our business does and offers while making sure it is a viable product in 2024. One thing I learned is that you cannot put keylogging software on any employee's computer without notifying them as it is illegal to do that without their consent

**Deliverable 2: Reflections**

Mahmoud Elarag:

In the third phase of our Keylogger Security Software Completion Project, collaborating with peers provided practical insights into developing monitoring software. We explored assumptions, constraints, and risks, highlighting the complexities in such endeavors. Emphasizing legal compliance and ethical considerations, ongoing legal consultations were crucial. Constraints underscored the importance of resource optimization, technical adaptability, and budget management in software development. The mid-project Earned Value Management (EVM) analysis revealed challenges including inefficient coding practices and unexpected technical hurdles. Corrective actions, like improved collaboration and a scope freeze, aim to enhance project outcomes. Revised estimates reflect adjustments, with an EAC of $241,000 and an ETC of 266,667. This experience deepened my understanding of balancing technical innovation, legal compliance, and client satisfaction in real-world software development.

Eran Harris:

For the second deliverable, I drafted the project overview of the project charter. My job was to describe the project as well as address the business needs and expected benefits of the project. This deliverable was a learning experience for me because I learned about what a charter entails and how it can be formatted. I did not contribute to the cost estimates, but I also gained a better understanding of the financial considerations of projects. Though there are many factors that affect the decision of stakeholders to agree to a project, the cost of a project can have a major influence on the decision.

Jordan Hutcherson:

For the second portion of the project, I worked on the project duration and budget estimate along with project cost estimates. Since the software we are developing is made in python, which is a free programming language, I think it will help us save a lot of money on developing and finding information on making the software. I learned that even a simple software development like this can be easy but also tedious in terms of going over the costs and needs and making sure that the budget is fair and understandable. For the project cost estimate, I think taking the approach for monthly subscription or a one-time fee would be perfect for what we sell due to how the software works. Since we would have to update it, monitor how well it works along with getting feedback from our customers, it helps us develop a better product while keeping our customers happy and not trying to over charge and sell a low tier product and leaving it as it is with no updates or customer service. With my approach to the project estimate I understand how much value I was placing to the customer with our product by offering a lot of features while also making sure the company will still make a profit while simultaneously making our customers happy and satisfied. I think from a business standpoint, our product could be very successful if we market it right and sell the right features.

Yannis Eyob:

I contributed to the portions of the project charter describing the project objectives, high-level requirements, major deliverables, and project boundaries and exclusions. With the help of my peers, I outlined the objectives of the project, which is to enhance the functionality of the client’s monitoring tools while safeguarding employee privacy and to establish robust security measures to protect data from unauthorized access. I also provided the high-level requirements which is the development of monitoring and security features to encompass and be compatible with a wide range of organizations sizes and existing systems. Additionally, the requirements are to also adhere to legal and ethical standards and non-interference with the client's productivity. While developing the major deliverables and project boundaries/exclusions, I learned that even though implementing a simple keylogging software can seem easy it also created many steps for its major deliverables. The design, implementation, maintenance, testing, and training can take time which is mundane. Additionally, client-specific configurations and customizations would be feasible and flexible as it makes the project not overly complex on numerous client requirements.

**Deliverable 3: Reflections**

Yannis Eyob:

I contributed to the design of the time management project. Unfortunately, MS Project did not work so I had to make improvisations. I created my own Work Breakdown Structure (WBS) with a project schedule that demonstrated the successors and predecessors with the start and end dates corresponding to the project durations. The table consists of the main project (Development and Implementation of Keylogger Software ‘Keystroke’) with the successors. The successors include but are not limited to the initial hiring stages, design and implementation stages, error and analysis, maintenance, and assignments. While developing the time management WBS, I learned how each task is important because they play an important role in ensuring there are no errors and undetectable obstacles can be overcome. Creating a timeline with fixed dates can help a project to be punctual, meaning that objectives can be achieved by creating milestones for the project's needs.

Eran Harris

The last deliverable of the project was quite a learning experience for me. My responsibility for the deliverable was to draft the Project Scope Management part of the project. I wrote the project summary, project requirements and characteristics, deliverable summaries, and our success criteria for the project. As I was writing, I truly began to understand the importance behind outlining as well as managing a project’s scope. Making the mistake of neglecting this particular knowledge area can lead to the overestimation or underestimation of resources, possibly resulting in the project being cancelled which would cause the company to lose money. Once a project’s scope is properly drafted, the management team and stakeholders will have a more narrowed perspective of the end goal and the resources needed to get there.

Jordan Hutcherson

I contributed to the prototype and project cost management. Making the project cost estimates has been a really educational experience that has helped me understand how difficult it is to strike a balance between different financial factors and the complexities of software development. I now have a better awareness of the many aspects of project expenses, including deployment alternatives, one-time fees, subscription models, and support tiers. Furthermore, the review of earned-value management clarified the need of continuous project performance evaluations, assisting in the identification of possible obstacles in the middle of the project and facilitating the development of efficient remedial measures.