**Project 17 – KSU eSports Tournament Automation Bot, Team 2, Sections W01/01 , D2L group Team 2 – 17 – KSU eSports – Tournament Bot**

Date: 09/20/2024

**Project Overview**

Currently, KSU eSports hosts tournaments and in-house game nights for students, but tournament administration tasks are performed manually. These tasks include forming brackets and teams, tracking player statistics, and determining winners of the tournaments. In this project, we will be creating a Discord bot that handles tournament administration tasks such as creating teams and brackets (matchmaking), team placement, score keeping, and tracking player performance. The team will design and implement matchmaking algorithms using AI to check the players’ skill levels to ensure optimal team placement. The team will also create a database to store player statistics and data, we will develop a user-friendly user interface using Discord embeds and commands, and we will pull player data by using developer APIs. The team will perform bug testing and playtesting while in the development process and we will ensure the project is updated to GitHub on a weekly basis.

There is currently an existing Discord bot for the KSU eSports in-house League of Legends intramural tournaments; however, the bot is missing functionality aspects, such as tracking MVP votes. Additionally, the current matchmaking algorithm used in the existing Discord bot has some limitations. The algorithm does not mix up players between matches, does not track player performance, and does not factor in things like win/loss ratios. This could create issues throughout the tournament since the Discord bot could create teams with a greater advantage and could result in unenjoyable game play. In this project, the team will be improving the matchmaking algorithm to ensure it tracks player performance and adjusts teams as necessary to ensure optimal gaming experience for the KSU eSports League of Legends intramural tournament players.

The primary objective of this project is to improve the functionality of the pre-existing Discord bot used for the KSU eSports League of Legends tournaments. The team plans to improve the bot by having the matchmaking algorithm track player performance and create new teams after each game. Furthermore, the Discord bot will be improved to track Discord IDs instead of usernames. This will save the sponsor a considerable amount of time since they will not have to manually update the Google Sheets spreadsheet when a player changes their Discord username. At each phase of the project, the team will conduct research to determine best practices for implementing the improvements we plan to make.

The project begins on August 18th, 2024 and will end on November 22nd, 2024. The team will present 3 major milestone deliverables throughout the project and weekly log reports detailing the tasks and member contributions for each week. Additionally, the team will present bug logs, a test plan, a research paper, and a fully functional Discord bot by the end of the project. For Milestone 1, the team will present the initial version of the Discord bot and a plan for the remaining time of the project. Additionally, the team will present the basic database set up, the testing environment set up, the test plan, and the project plan and scope. For Milestone 2, the team will present a functional Discord bot prototype with an updated matchmaking algorithm, updated functions, and has been integrated with the database. Additionally, the team will present the updated Test Plan documentation, bug logs, and documentation detailing any issues encountered during this portion of the project. For Milestone 3, the team will present an updated Discord bot after all bugs have been fixed and a user-friendly interface has been created. Additionally, the team will present all documentation detailing bug testing and playtesting, including bug logs and an updated test plan. Furthermore, the team will present a finalized research paper, documentation detailing the project and the issues faced, and documentation detailing installation and usage instructions.

**Project Participants**

|  |  |  |  |
| --- | --- | --- | --- |
| **Roles** | **Name** | **Major responsibilities** | **Contact (Email and/or Phone)** |
| Project owner sponsor | Kylie Nowokunski | Determine the Projects goals and receive the deliverables throughout the project | knowoku1@students.kennesaw.edu |
| Team leader | Patricia Helfrick | Technical Writing, meeting note taker/recorder, creating and maintaining the team site, cybersecurity research and some web server testing. I also help to facilitate group progress by scheduling and running the team meetings, creating outlines for presentations, being available as much as possible to help clarify any issues or questions regarding the project and its expectations. I also act as liaison between the Project Owner/Professor and the team. | phelfric@students.kennesaw.edu |
| Team members | Jackson Stogsdill | Research, security policy drafting & implementation, perform bug testing. | jstogsdi@students.kennesaw.edu |
| Daniel Schroeder | Research risk assessment on import assets, list common threats, research Discord bot embeds and commands. | dschroe6@students.kennesaw.edu |
| Niranjanaa Jayakumar | Server infrastructure management, research matchmaking algorithms and implement them, perform bug testing. | njayakum@students.kennesaw.edu |
| Trinity Miller | Help to research and implement the matchmaking algorithms in accordance with the various tasks that need to be done in order to successfully complete this project. | tmill179@students.kennesaw.edu |
| Advisor / Instructor | Donald Privitera | Facilitate project progress; advise on project planning and management. | [dprivit2@kennesaw.edu](mailto:dprivit2@kennesaw.edu) |

**RACI Chart**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| R- Responsible A- Accountable C- Consulted I- Informed | | | | | | | |
| Project Deliverable or Task | Project Owner Sponsor (***Kylie Nowokunski)*** | Team Leader (Patricia) | Jackson | Trinity | Niranjanaa | Daniel | Advisor/Instructor  (Donald Privitera) |
| **Weekly Report 1** |  | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Look through existing bot code and identify bugs | **C** | **A/R** | **R** | **R** | **R** | **R** |  |
| Develop basic bot commands for creating teams and brackets | **C** | **A** | **R** | **R** |  |  |  |
| Set up preliminary database |  | **A/R** |  |  | **R** | **R** |  |
| **Weekly Report 2** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Set up development environment |  | **A** |  | **R** | **R** |  |  |
| Create test plan and documentation |  | **A/R** | **R** |  |  | **R** |  |
| **Milestone Report 1** | **C** | **A/R** |  |  |  |  |  |
| Milestone Report 1 PowerPoint Presentation | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| **Weekly Report 3** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Research matchmaking algorithms |  | **A/R** | **R** |  |  | **R** |  |
| Update bot by implementing matchmaking algorithms |  | **A** |  | **R** | **R** |  |  |
| **Weekly Report 4** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Research API integration |  | **A/R** | **R** |  | **R** |  |  |
| Develop API integration |  | **A** |  |  | **R** | **R** |  |
| **Weekly Report 5** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Research optimizing server resource management |  | **A/R** | **R** | **R** |  |  |  |
| Implement asynchronous processing |  | **A** |  |  | **R** | **R** |  |
| **Milestone Report 2** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Milestone Report 2 PowerPoint Presentation | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| **Weekly Report 6** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Conduct bug testing and playtesting |  | **A/R** | **R** |  |  | **R** |  |
| **Weekly Report 7** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Develop user interface by creating embeds and commands |  | **A/R** |  | **R** | **R** |  |  |
| **Weekly Report 8** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Conduct final bug testing |  | **A** |  | **R** | **R** |  |  |
| Create technical document detailing installation and usage instructions |  | **A/R** | **R** |  |  | **R** |  |
| Create technical documents detailing the project and issues faced |  | **A/R** | **R** | **R** | **R** | **R** |  |
| **Milestone Report 3** | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |
| Milestone Report 3 Final PowerPoint Presentation | **C** | **A/R** | **R** | **R** | **R** | **R** | **I** |

**Final Deliverables**

The final deliverables of this project will include a fully functional and tested Discord bot for KSU eSports that will automate tournament administration tasks. These tasks include AI-driven matchmaking, bracket formation, and tracking player statistics. The Discord bot will have an easy-to-use user interface created with Discord embeds and commands, integrated real-time player data from public APIs, and a managed comprehensive player database. The final deliverables will also include comprehensive reports detailing issues that have been identified and their resolutions as well as a GitHub page that will include everything the team has worked on throughout the project and commented code. Additionally, there will be final project documentation detailing the specifics of the project, installation, and usage instructions.

**Milestones**

#1 - By 09/22/2024

#2 - By 10/20/2024

#3 FINAL - By 11/17/2024

**Deliverable Expectations**

It is expected that the team will provide a fully functional Discord bot that ensures optimal team placement, can store player statistics and data, and pull player data with an easy-to-use user interface. It is expected that the database will have a seamless integration with the Discord bot and the matchmaking algorithms will be accurate. Every week, the team will upload everything that has been worked on to GitHub to track the progress of the project. Additionally, the team will upload code for the Discord bot to GitHub with clear comments and the team will provide clear documentation on each task for the Discord bot.

**Future meetings date/time**

The team will be meeting twice a week (Mondays and Fridays) at 10:30 am starting on August 26, 2024 (8/26/24) to discuss tasks, project changes, and give updates. In observance of Labor Day, the team will not meet on Monday, September 2, 2024 (9/2/2024) and will meet on Tuesday, September 3, 2024 (9/3/2024) instead. Starting on August 30, 2024 (8/30/24), the team is scheduled to meet with the sponsor every Friday at 2:00 pm. Based on this schedule, future milestone meetings dates will be September 20, 2024 (9/20/24), October 18, 2024 (10/18/24), and November 15, 2024 (11/15/24).

**Collaboration Plan**

The team will be meeting through Microsoft Teams twice a week throughout the duration of the project. The team will meet on Monday mornings at 10:30 am and Friday mornings at 10:30 am. Additionally, the team meetings will be recorded and transcribed and the team will be publishing required files to the team channel once they have been completed. Furthermore, a separate Teams channel has been created for the team to communicate, discuss ideas, and work off each other. The separate Teams channel that has been created will be used to keep drafts of documents and recordings of internal team meetings, communicate task assignments, ask for help with tasks, and relay communication about missing weekly meetings. The Teams channel created by the Program Coordinator will be used to keep final copies of documents, ask questions about the project, and relay communication about missing sponsor meetings. The team will also be utilizing a Teams group chat to discuss ideas for improvements that need to be made to tasks or documentation and give updates about due dates. Furthermore, the team has joined a Discord server created by the sponsor to ask the sponsor questions about the project, post important project information, discuss ideas and potential issues with Team 1, and perform command testing for the current bot. The team has also created a separate Discord server to perform bot testing.

**Communication Plan & Policy**

The team has agreed to utilize six forms of communication throughout the project. These forms of communication are listed below in order.

1. Microsoft Teams
2. Email (KSU student emails)
3. Cell phone numbers (texting)
4. Cell phone numbers (calling)
5. Discord to communicate with project sponsor
6. Email to communicate with instructor (KSU student emails)

For the team’s communication plan and policy, every member must aim to answer as quickly as possible by keeping notifications turned on for Microsoft Teams on the desktop and mobile applications. When a team member sends a message through Teams relaying information, but not asking a question, the team should aim to acknowledge the message by reacting to it or responding. When a team member asks a question through Teams, the team will wait for a response for 2 hours. After 2 hours have passed, the team will move on to the next form of communication (KSU email). Once an email has been sent, the team will wait for a response for 2 hours before moving on to the next form of communication (texting cell phone number). Once a text has been sent, the team will wait for a response for two hours before moving onto the fourth form of communication and making a phone call. If the phone call is not answered, the team will wait for a response for one hour before moving on to the fifth form of communication (Discord). While the team will be using Discord mostly to communicate with the sponsor and discuss tasks, Discord will be used as the final form of communication within the team. Once a Discord message has been sent, the team will wait for a response through any form of communication for one hour before moving onto the final form of communication (email to the instructor). The team will only move on to this form of communication to discuss a team member’s lack of response with the instructor.

**Project Schedule, WBS, and Tasks Plan**

See the .MPP file and Gantt chart - file attached.

**Project Change Management**

In the event that one of the team members is not contributing to the project, the team will talk to the underperforming team member and ensure they understand how their performance impacts the rest of the team and the project quality. A team member will be seen as not contributing to the project if they are not weighing in during every team meeting, staying completely up to date with tasks and changes in the project, or not actively giving ideas and feedback. At least once a week, every team member should have at least one new thing they have worked on or one new thing to contribute to the project, whether it is feedback, something that needs to be approved, or something they have added to the project. A team member will be considered an underperforming member if they are not meeting deadlines, not giving updates on their tasks, and/or missing weekly check-in meetings without prior notice. If the underperforming team member still does not contribute to the project after talking with the team, the team will discuss the issue with the advisor/instructor. If an underperforming team member is removed from the project, the remaining team members will continue the project by splitting up the work that was assigned to the underperforming team member.

**Quality Assurance Plan**

The team will provide weekly updates regarding what tasks they have been working on and how far they have gotten into their assigned tasks. These weekly updates will allow all team members to have an awareness of what has been done and what needs to be done so the team members are not working on the same tasks and nothing is being repeated. To ensure quality in all aspects of the project, the team will be setting internal deadlines for weekly tasks. The team will have an internal deadline of Wednesday evening each week, which will allow the team to have at least two days to check the work that has been done and make changes, if necessary, before the weekly meetings with the sponsor and before the due date set by the instructor.

During the team’s Monday morning meetings, we will review the tasks that need to be completed for the week and discuss the task(s) that each team member will complete for the week. The team leader will check in with the team on Tuesday to see if anyone needs help with their task before the Wednesday evening deadline. On Thursday, the team leader and one other team member will review the tasks that have been completed to ensure the tasks have been completed properly. During the team’s Friday morning meetings, the team will discuss the completed tasks and the two team members who reviewed the tasks will give their approval for the task or make suggestions for improvement. If changes need to be made to tasks, the team leader and one other team member will review the revised task before allowing the remaining team members to review the completed task and give their input. Additionally, the team leader and two other team members will perform testing to ensure all aspects of the project meet the requirements given to us. Furthermore, the team leader and one other team member will perform extensive proofreading to ensure all documentation has no grammatical errors or typos and ensure formatting is professional.

The team leader will give their approval and input for each task. Additionally, the team leader will also send all documentation to the instructor and sponsor to get their approval. Furthermore, the team leader will communicate with the project sponsor to get approval on all tasks and ensure all tasks have been completed to their satisfaction. The team leader will communicate all suggestions for improvement or suggested changes given by the project sponsor and instructor to the team. The team leader will select one-two team members each week to perform quality assurance testing for tasks and documentation. Ideally, the team leader will rotate quality assurance testing between all team members based on their strongest skills. For example, if one team member is highly skilled at proofreading and grammar, they will be selected for proofreading all documentation. If two team members are highly skilled at coding and bug testing, they will be selected for reviewing the tasks involving coding for the bot and debugging the code.

**Risk Management Plan**

The team has identified a few potential risks that could impact the team’s ability to complete the project. These potential risks include someone getting sick, someone withdrawing from the course, the sponsor changing requirements for the project, delayed communication with the sponsor and/or within the team, and a team member not meeting the deadlines for the project.

If a team member gets sick and is unable to complete their assigned task(s) for the week, it is the responsibility of the sick team member to inform the team and give a brief explanation of what they’ve worked on so the other team members can split up the work. If a team member gets sick before the sponsor meetings, there should be at least one or two team members attending the meeting that can take notes to send to the rest of the team after the meeting. Currently, most, if not all, members of the team have no scheduling conflicts with the sponsor meetings and will be able to attend the sponsor meetings. If someone withdraws from the course, it is required to let the team know so their work can be split amongst the other team members.

If the sponsor is unable to attend a scheduled sponsor meeting and has not communicated with the team before the meeting begins, the team will wait for the sponsor to join the meeting for 10 minutes after the scheduled start time before sending a message to the sponsor. The team will wait for a response from the sponsor for 10 minutes. If the sponsor responds within 10 minutes and says they are running late, the team will continue to wait for the sponsor. If the sponsor responds within 10 minutes and says they are unable to meet with the team and needs to reschedule, the team leader will communicate with the sponsor regarding when to reschedule the meeting and will allow the other team members in attendance to leave the meeting. If there is no response from the sponsor after 10 minutes, the team leader will allow the other team members in attendance to leave the meeting. Team members can only leave the meeting after all members have sent the required files and documents to the team leader in the event that the sponsor joins the meeting after they have left. The team leader will continue to wait for the sponsor for another 10 minutes. If the sponsor has not responded during this time and has not joined the meeting, the team leader will send a follow-up message to the sponsor. The team leader will wait for a response for another 10 minutes. If the sponsor has not responded during this time, the team leader will leave the meeting. The team leader will then send another follow-up message to the sponsor regarding rescheduling the meeting in addition to sending an email to the instructor and Program Coordinator explaining the situation.

To help avoid any delays in task completion throughout the project due to sickness or extenuating circumstances, each team member has been assigned a backup person to take over their tasks and assignments. In the event that the team leader is unable to keep up communication with the project sponsor or instructor, Trinity Miller is designated as the backup team leader and will step in to handle communication, note-taking during meetings, and project check-ins with the team. Daniel Schroeder is designated as the backup person for Niranjanaa Jayakumar, Patricia Helfrick is designated as the backup person for Trinity Miller, Niranjanaa Jayakumar is designated as the backup person for Jackson Stogsdill, and Jackson Stogsdill is the designated backup person for Daniel Schroeder.

To avoid any delays in communication with the project sponsor, the team plans to communicate with the sponsor if we have questions or need approval as early as possible to avoid any issues with delayed communication. If the sponsor changes a requirement, the team will have a quick, emergency meeting to discuss the change and ensure all team members understand the change. Furthermore, the team should anticipate that additional requirements will be added so the team will allow extra time for any additional requirements to be completed. Setting internal deadlines for weekly tasks for Wednesday evenings will allow the team to be prepared for any project changes or additional requirements.

The team’s primary focus is completing the tasks for the project to the best of our ability and completing the tasks on time. The team has decided to create internal deadlines each week by Wednesday evening to ensure that tasks are done in a timely manner. The team leader will check in on Tuesdays to ensure all team members have started their tasks and see if they have any questions. Additionally, the team will be utilizing Google Docs so each member can track the team’s progress on tasks. By using Google Docs, each member of the team can ensure that tasks are being completed by our internal deadlines as well as see if anyone needs help with their task. Using Google Docs will also allow the team to be more prepared to step in and help with tasks as needed. If any team member has questions about their task that prevent them from completing their task by the Wednesday deadline, we will extend the internal deadline to Thursday and help other team members with tasks when it is needed.

In the event of system outages, the team will communicate with the sponsor and the instructor as soon as they notice the system is down. To avoid missing a deliverable due to system outages, it is the responsibility of each team member to keep track of all D2L notifications regarding system outages and maintenance. Additionally, the team aims to turn in assignments and deliverables at least a day before the scheduled due date. If the team is not aware of previously scheduled system outages or maintenance and misses a deliverable, the team will communicate with the sponsor and the instructor to explain the situation and determine if the deliverable could be turned in another way. When the team leader checks in with the team throughout the week regarding their tasks, it is the responsibility of each team member to discuss progress on their task and ask for help if needed. In the event the team misses a deliverable due to a delay in completing assigned tasks, the team leader will communicate the delay with the project sponsor and instructor and explain what is causing the delay in completing the deliverable. In this case, the team will aim to complete the missed deliverable within 1-2 days to avoid further delays to the project.

In the event of Teams going down before or during a sponsor meeting, the team will communicate with the sponsor through Discord to inform her of the system outage and plan another way to meet. In the event of Teams going down and preventing the team from meeting with each other, the team will communicate the system outage and plan to meet through a conference call or Discord.

**Signed by:**

Patricia Helfrick Jackson Stogsdill        Trinity Miller

Daniel Schroeder         Niranjanaa Jayakumar