Answer 1)

Email Address : bneupan2@myune.edu.au

classproject> git shortlog --author=bneupan2@myune.edu.au

Bikash Neupane (49):

Sample File Created for Client and Server

Test

Files Updated

Merge branch 'SydneyNepal' into 'main'

File V2 Updated

Checking

Checking v2

Checking again

Fixed changes

Merge branch 'main' of https://gitlab.une.edu.au/cosc220-2023/classproject into SydneyNepal

checking v3

Deleted

New files created

Files Created

Main file Updated

Main file Updated

New file updated

Run in new window

Merge branch 'SydneyNepal'

Minor corrections for final

Minor Updates

Merge branch 'SydneyNepal' of https://gitlab.une.edu.au/cosc220-2023/classproject into SydneyNepal

UI redesigned

Client methods updated for better functionality

Blinking effect rather than line drawn

UI Updated

load() Updated

Someone again modified our main branch

UI Updated

UI Updated

Blink added

New change

Reverted back and UI redesigned

Constructor frame added

Update

Blink error debugged

main method updated

New Game Updated

V1 Updated

Why

Method name Updated

Merge branch 'SydneyNepal' into 'main'

Method made public

Test Success

Another window bug fixed

MenuPanel added

Bug fixed of score for new game after first game.

reverted back to test success by anil khatri

Revised for error free

Answer 2)

**Project Role and Contributions**

**Role:**

I was primarily responsible for developing and maintaining the client **(mainly)** and server side of our project, focusing on programming, code optimization, and user interface design. My key responsibilities included troubleshooting and debugging, UI enhancements, method updates, and ensuring the smooth integration of new features and functionalities.

**Contributions:**

Code Development and Optimization:

I played a crucial role in developing and optimizing the project’s codebase, ensuring high-quality and efficient performance. The commits such as “[Client methods updated for better functionality](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/93e9a4f6f32c217a974d553d32523412107cd602),” “[Method made public](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/4bce97b8f592e198fd8027fb0f6278a981d734fb),” and “[main method updated](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/e3b0459f48b261f3ab247ef255fe381125902931)” reflect my work in this area.

User Interface Design:

I led the redesigning and enhancement of the user interface to improve user experience and functionality, evidenced by commits like “[UI redesigned](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/c4fe21c7cf7683191c52f5d0687fa50d7ff8e0e8),” “[UI Updated](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/e97d6f288f22a71ec75eb9cf78832b8b0f6abb33),” and “[MenuPanel added.](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/45e83ec868edb1f0ea6ec45ce9f3e0424aa73a85" \t "_blank)” I focused on creating an intuitive and user-friendly interface while maintaining a clean and modern design aesthetic.

Debugging and Troubleshooting:

I was actively involved in identifying and resolving various bugs and errors in the project, such as “[Blink error debugged](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/f5a1db156fea3a2dd99bca91936221f00925d91c)” and “[Another window bug fixed](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/d9fb6ae82093471773dff0d694d8fe20c8ed0a5e),” to ensure the delivery of a reliable and error-free product.

Feature Integration and Testing:

I worked on the integration of new features and conducted thorough testing to ensure the stability and reliability of the project. “[Test Success](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/7cdf1b4fee3d2d16fd6af1239b61ae27f02be3b2#6c5f251af6d4f6a4a214d5a85d353fa22f30aa13),” “[Files Updated](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/6e757d17ca663b272d57a7981cfa0d94df1927bf),” and “[Revised for error free](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commit/393cddca0e8cf2927aef770b8170f0f6f9ab7e48)” are examples of commits representing this contribution.

Branch Management and Merging:

I was responsible for managing my branch ‘[SydneyNepal](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commits/SydneyNepal" \t "_blank),’ and successfully merged it into the main branch on several occasions, ensuring that the main branch remained up-to-date with the latest features and improvements.

**Portfolio Links:**

[**Link to GitLab Repository**](https://gitlab.une.edu.au/cosc220-2023/classproject/-/tree/SydneyNepal?ref_type=heads)

Here one can find the entire project, along with the detailed commit history illustrating my and our group contributions to the project.

[**Link to specific commits**](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commits/SydneyNepal?author=Bikash%20Neupane)

This link will direct to all the commits made under our branch, ‘[SydneyNepal](https://gitlab.une.edu.au/cosc220-2023/classproject/-/commits/SydneyNepal" \t "_blank),’ showcasing my individual contributions and progress throughout the project development.

**Reflection:**

I believe my contributions significantly impacted the project’s success, helping in delivering a high-quality product with enhanced user experience and functionality. My active involvement in various aspects of the project, from coding and UI design to debugging and testing, ensured the smooth and timely completion of the project.

Answer 3)

Our group **SydneyNepal** had a well-structured and diverse skill set, with different members taking the lead on various aspects such as development, documentation, planning, and testing.

**What Worked Well:**

**Clear Role Allocation:**

Every team member had a clear understanding of their responsibilities. I, **Bikash Neupane**, focused on commits, client-side game creation, UI features, and team leadership. **Sabin Dhital** concentrated on paperwork, documentation, and planning, while **Anil Khattri** provided concepts and created test cases. This clear division of labor allowed for efficient workflow and productivity.

**Effective Communication:**

Creating a Facebook messenger group for communication and file sharing facilitated effective and real-time interaction, which enabled smooth collaboration and quick resolution of issues.

**Collaborative Problem Solving:**

The team worked together to shift logic from client to server side and to integrate discussed game UI and extra features, demonstrating our ability to collaborate effectively to solve problems and implement features.

**Diverse Skill Set:**

The varied skill sets within the team allowed for a well-rounded approach to the project, from the conception of UI concepts to the implementation of features and optimization of code.

**Leadership and Motivation:**

As the team leader, I kept track of project progress, facilitated effective communication between team members, and encouraged everyone to contribute effectively, maintaining team morale and ensuring project success.

**Application to Future Projects:**

**Maintain Clear Role Allocation:**

Clearly defining roles and responsibilities from the outset can help in maintaining a structured and organized approach in future projects, ensuring every team member knows what is expected of them.

**Encourage Effective Communication:**

Keeping open lines of communication through appropriate channels is crucial. It can help in resolving issues promptly and can facilitate better collaboration and understanding among team members.

**Leverage Diverse Skill Sets:**

Having team members with varied skills and expertise can bring different perspectives and solutions to the table. Recognizing and utilizing these diverse skills can lead to more innovative and well-rounded projects.

**Continue Collaborative Problem Solving:**

Encouraging collaborative brainstorming and problem-solving can lead to the development of more robust and well-thought-out solutions and can foster a sense of shared ownership and achievement among team members.

**Maintain Strong Leadership:**

Having a strong and motivating leader can help in keeping the team focused and motivated, ensuring smooth progress and successful completion of projects.

**Conclusion:**

The successful aspects of this project such as clear role allocation, effective communication, diverse skill sets, collaborative problem solving, and strong leadership should be recognized and applied to future projects to replicate success. By maintaining a structured, communicative, and collaborative approach, groups can navigate challenges more efficiently and produce high-quality work.

Answer 4)

When reflecting on what didn't work well in a project, it's crucial to be constructive and focus on learning and improvement.

**What Didn't Work Well:**

**Uneven Distribution of Workload:**

The distribution of tasks appeared to be quite uneven, with some team members shouldering a heavier burden. I, Bikash Neupane, made almost all the commits and was heavily involved in both development and leadership roles, which might have led to an increased pressure and potential burnout. **For the part of making almost all the commits, this strategy was crucial in maintaining consistency and avoiding conflicts in our codebase, leading to smoother development and integration processes.**

**Limited Contribution to Coding:**

There was a noticeable disparity in coding contributions among team members. Future projects might benefit from a more equitable distribution of coding tasks to ensure shared responsibility and diversified input.

**Overreliance on Individual Skills:**

While having diverse skills within a team is advantageous, there seemed to be an overreliance on individual skills, potentially leading to knowledge silos and increased risk if a team member was unavailable.

**Potential Lack of Regular Synchronization:**

Although the roles were clear and the communication channels were established, there may have been instances where the team didn’t synchronize regularly on the project's progress and upcoming tasks, possibly leading to misunderstandings or misalignments.

**UI designation integration with Project Designation:**

Although we designed from simple to advancing as we go on working, it was hard for us to implement our design as per the project designation. For example, we designed using JFrame and menubar inside it. But as per the minigameclient, it didn’t accept the JFrame and we need to convert our JFrame to Jpanel. And again, JPanel didn’t support menubar and again we need to convert our menubar to Jpanel as well and merge inside it. And as well, we supposed to make the options of menubar to be on the left of screen always but due to the minigamesclient structure, we failed to do so. However, our code is focused to be in left side of the screen.

**What to Do Differently in Future Projects:**

**Ensure Equitable Distribution of Work:**

Strive for a more balanced distribution of tasks, ensuring that no single team member is overwhelmed, and everyone has an opportunity to contribute meaningfully to the project.

**Encourage Cross-functional Skill Development:**

Promote learning and development within the team, encouraging members to acquire new skills and knowledge, reducing overreliance on individual skills, and fostering a more versatile and resilient team.

**Regular Synchronization and Check-ins:**

Implement regular synchronization meetings to keep everyone on the same page regarding project progress and upcoming tasks, mitigating misunderstandings and ensuring alignment on goals and priorities.

**Enhance Collaboration in Coding Tasks:**

Encourage all team members to contribute to coding tasks, fostering a sense of shared responsibility and allowing for diversified input, which can lead to more robust and innovative solutions.

**Constructive Feedback and Continuous Improvement:**

Cultivate an environment where constructive feedback is welcomed and used as a tool for continuous improvement, enabling the team to learn from each project and refine their approach for future endeavours.

**Conclusion:**

Identifying and understanding the aspects that did not work well is crucial for continuous improvement and learning. Implementing changes based on these insights can help in fostering a more balanced, collaborative, and efficient team environment in future projects, leading to better outcomes and enhanced team dynamics.

Answer 5)

**Hardest Challenges Faced:**

**Lack of Clear Vision and Direction:**

The absence of a product owner or a manager to impose a vision resulted in a lack of clear and unified direction for the project. It was challenging to reconcile different views and ideas within the team and to establish a cohesive roadmap for the project.

**Managing Multiple Developers:**

Coordinating the work of many developers, each with their unique approach and ideas, was challenging. It required constant communication and negotiation to ensure that everyone was aligned and that the individual contributions were cohesive and consistent with the project's goals.

**After we pushed our code to the main branch, it might had conflicted with other groups projects and hence they deleted, edited, modified, and commented out our code to make sure they can run their code smoothly. And now again, we had to revert back to our previous stage which was time consuming and hard to implement with the new changes as well.**

**Navigating a New Toolchain:**

Learning and adapting to a new toolchain was demanding and time-consuming. It required considerable effort to understand the nuances of the tools and to integrate them efficiently into the workflow.

**Balancing Leadership and Contribution:**

As the team leader, finding the balance between managing the team, maintaining effective communication, and contributing to the project's development was very challenging. It was crucial to ensure that leadership responsibilities did not overshadow the importance of contributing to the project's tangible development.

**Absence of Hierarchy:**

The lack of a hierarchical structure meant that decision-making was often a collaborative yet challenging process. Reaching consensus on various aspects of the project required substantial effort and negotiation.

**Why it was hard:**

**Decentralized Decision-Making Process:**

With no hierarchical structure, every decision had to be made collaboratively, which, while fostering a sense of shared responsibility, often led to extended discussions and sometimes conflicts, delaying progress.

**Learning Curve:**

The learning curve associated with adapting to a new toolchain affected the pace at which the project progressed initially. Time invested in learning and adapting could have been utilized in development.

**Multiple Perspectives:**

While having diverse perspectives is valuable for innovation, it also brought about challenges in aligning individual visions and contributions to a unified project goal, requiring considerable effort in coordination and alignment.

**Lack of Clear Guidelines:**

The absence of a clear vision and guidelines from a manager or a product owner meant the team had to create their roadmap, which, while fostering creativity, also resulted in uncertainties and ambiguities.

**Reflection:**

The challenges faced during this project served as significant learning experiences, highlighting the importance of clear vision, effective team management, and the need for efficient learning and adaptation in a new environment. These challenges underscore the importance of developing versatile skills, the ability to work collaboratively, and the adaptability to navigate uncertainties effectively in future projects.

Answer 6)

Continuing development on a group project after a trimester certainly involves several ethical considerations. Here is a thoughtful analysis of such a situation:

**Ethical Consideration:**

The primary ethical consideration in this scenario is the intellectual property and contribution recognition of all the group members involved in the project. If a member wishes to continue development, it's crucial to ensure that the original contributions of all group members are appropriately acknowledged, and their rights and wishes are respected.

**Impact on the group member wishing to continue development:**

Positive Impact:

The member can continue to refine and expand the project, potentially creating a more polished and comprehensive portfolio piece to showcase to future employers or the public.

Negative Impact:

The member may face difficulties and conflicts if the original group members disagree with the continuation or the way the project is developed or presented.

**Impact on other group members:**

Positive Impact:

If the project is successful, all original group members can benefit from the recognition and may use the project to enhance their own portfolios, even if they are not actively involved in its continued development.

Negative Impact:

The other group members may feel their contributions are overshadowed or misrepresented if the continuing member doesn’t accurately acknowledge the collective effort. They may also have concerns about how the project is being used or shared, especially if they disagree with any modifications or the direction of continued development.

**Trade-offs and Solutions:**

**Acknowledgment and Permission:**

The continuing member must seek permission from all other original group members before proceeding with further development or public sharing, respecting their wishes, and addressing their concerns. Proper acknowledgment of each member's contribution in any future versions or presentations of the project is also crucial.

**Open Communication:**

Maintaining open and transparent communication with all original group members can help in addressing concerns and avoiding misunderstandings. Regular updates on the progress and any significant changes can help in keeping everyone informed and involved.

**License Agreement:**

Establishing a clear and mutually agreed-upon license for the project can help in defining the rights and responsibilities of each group member and can provide a framework for any future developments or uses of the project.

**Conclusion:**

Continuing development on a group project post-trimester involves navigating ethical considerations related to intellectual property, contribution acknowledgment, and team member rights and wishes. Balancing the interests of the continuing member with those of the original contributors is crucial, requiring open communication, mutual respect, and clear agreements to ensure fair and ethical handling of the project.

Answer 7)

In a development project aimed at public release, security is paramount to protect users' data and privacy. Here are two potential sources of security risk to users, along with proposed mechanisms to mitigate them.

**1. Source of Security Risk: Insecure Data Transmission**

**Description:**

If the application transmits data over the network without proper encryption, it could expose users' sensitive information to unauthorized entities. This can occur when data is sent over HTTP instead of HTTPS or when using weak or outdated encryption algorithms.

**Mitigation Mechanism:**

Implementing SSL/TLS encryption for all data transmitted over the network is crucial. Using HTTPS ensures that the data exchanged between the client and the server is encrypted and secure, reducing the risk of data interception and exposure. Regularly updating cryptographic libraries and using strong, modern encryption algorithms can further enhance security.

**2. Source of Security Risk: Injection Vulnerabilities**

**Description:**

Injection vulnerabilities, such as SQL injection, occur when the application does not properly validate or sanitize user inputs, allowing attackers to inject malicious code. This can lead to unauthorized access to or manipulation of data, potentially exposing sensitive user information.

**Mitigation Mechanism:**

Employing input validation and sanitization techniques can help in mitigating injection vulnerabilities. Parameterized queries and prepared statements should be used to interact with databases, preventing attackers from manipulating queries. Additionally, adopting the principle of least privilege, where each component of the system has only the permissions it needs to function, can limit the potential impact of an injection vulnerability.

**Conclusion:**

Ensuring the security of user data in public-facing applications involves identifying and mitigating potential vulnerabilities and risks. Implementing secure data transmission methods and safeguarding against injection vulnerabilities are critical steps in protecting user data and maintaining user trust. Regular security audits, code reviews, and adopting secure coding practices can further enhance the security posture of the application.