Premier University Chittagong

Department of Computer Science and Engineering

"Proposal for Establishing DevNet: A Dedicated Wing of Premier University Computer Club

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Submitted To

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1. Introduction

The Premier University Computer Club is dedicated to enhancing students' technical skills and passion for technology. To better prepare our members for the evolving tech industry, we propose a new wing, "DevNet", focused on four key areas: Web and Mobile Development, DevOps, Linux-Based Networking, and Gaming.

This specialized wing addresses a growing interest among students in these interconnected fields. Each area is a crucial part of today's tech landscape, offering unique paths for skill-building, practical learning, and career preparation. By establishing DevNet, we aim to broaden our club's appeal and provide structured resources, projects, and events aligned with members' goals.

Through DevNet, the Computer Club will more effectively support diverse technical interests, strengthen its campus presence, and offer hands-on experiences that enhance our university's reputation as a center for tech excellence.

2. Objectives

The main goal of this wing is to create a structured, supportive space where students can build expertise, share knowledge, and gain hands-on experience with industry-relevant tools. Each group within the wing has specific objectives:

2.1 Web and Mobile Development

- Equip members with skills for building responsive web and mobile applications.
- Collaborate with industry, organizations, and foundations.

2.2 DevOps

- Introduce and train on DevOps tools and skills.

2.3 Linux-Based Networking

- Develop skills in Linux system and Security.
- Provide hands-on experience with network development, server setup and virtualization.

2.4 Gaming

- Guide members through the game development process from design to play-testing.
- Offer training and events focused on E-sports and competitive gaming.
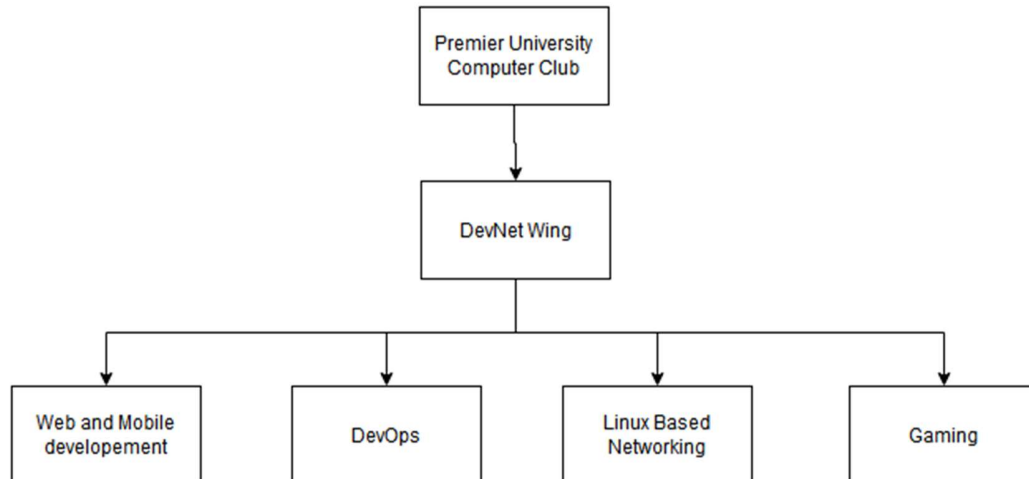
3. Structure of DevNet wing

Figure 1: DevNet wing and 4 Divisions (Web and Mobile development, DevOps, Linux based Networking, Gaming)

3.1 Web and Mobile Development

- Focus on creating responsive, interactive applications for web and mobile using popular frameworks like React, Flutter, and Node.js and JavaScript based framework.
- Cover both frontend and backend fundamentals to build full-stack development skills, with emphasis on UI/UX design for user-centered, visually appealing projects.
- Provide experience of large project development and management.
- By project's end, members will have a portfolio of functional applications used in real world environment demonstrating modern web and mobile practices.

3.2 DevOps

- Emphasize Continuous Integration and Continuous Deployment (CI/CD) for efficient, reliable software delivery, using tools like Jenkins and GitLab CI.
- Teach containerization with Docker and Kubernetes to manage scalable applications, including automation of dependencies, testing, and deployments.
- Cover infrastructure as code (IaC) with Ansible and cloud computing (AWS), enabling members to manage secure, scalable infrastructure across cloud platforms.

3.3 Linux-Based Networking

- Build foundational skills in Linux system administration, focusing on command-line, shell scripting, and process management.
- Offer practical experience with network protocols, firewalls, and basic cybersecurity to manage and secure Linux-based network infrastructure.
- Explore virtualization and server configuration, preparing members for roles in network administration and cybersecurity.

3.4 Gaming

- Cover the game development process from design and storytelling to coding, animation, and testing, using engines like Unity and Unreal.
- Teach essential skills such as scripting, 3D modeling, and asset integration to create 2D and 3D games with varied mechanics and graphics.
- Engage members in collaborative projects to design and test games, building a portfolio that showcases creativity, technical skill, and design thinking.

4. Structure of Roles

1. President

2. Vice president (4 Division)

3. General Secretary

4. Secretary (4 Division)

5. Treasurer

6. Logistics Coordinator

7. Recruitment and Public Relation Officer

5. Hardware and Resource Requirements

5.1 Web and Mobile dev

1. Server PC for deployment **(3 unit)**

    Configuration:

    Processor: Intel core i7 12/13 Generation or AMD Ryzen 7 5000/7000 series.

    Ram: 32 GB DDR4 / DDR5.

    SSD (NVME): 1TB.

    HDD/ SATA SSD: 1TB (2 UNIT) for archiving documents in 10 RAID Backup.

2. Monitor Keyboard Mouse **(3 Unit)**

3. Multiplug **(6 Unit)**

4. Switch **(8 Unit)**

5. Ethernet cable

6. UPS **(3 Unit)**

5.2 DevOps

1. Projector **(1 unit)**

2. Multiplug **(6 Unit)**

3. Switch **(8 Unit)**

4. Ethernet Cable

5.3 Linux Based Networking

1. Cisco Manageable Switch **(2 Unit)**

2. Non Manageable Switch **(6 Unit)**

3. Access Point (AP) Microtik Router **(2 Unit)**

4. Home Router **(2 Unit)**

5. PC for Virtual Machine and Simulation Software **(2 Unit)**

Configuration:

CPU: Intel Core i7 12/13 generation or AMD Ryzen 7 5000/7000 series

RAM: 32 GB

SSD: 1TB

6. PC for network testing, building Server and Hardware troubleshoot **(4 Unit)**

Configuration:

Processor: Intel core i5 12/13 Generation or AMD Ryzen 5 5000/7000 series

Ram: 16 GB DDR4 / DDR5

SSD: 512 GB

7. Ethernet card (intel chipset based) **(2 unit)**

8. Ethernet Cable and RJ 45 Connector.

9. Cable cutter **(2 Unit)**

10. Clamper **(2 Unit)**

11. LAN Tester **(2 Unit)**

12. Console cable **(4 Unit)**

13. Server Rack **(1 Unit)**

14. UPS **(6 Units)**

15. Keyboard, Mouse Monitor **(6 Unit)**

16. Repair Kit (Screw Driver, Plier, Zip ties etc)

5.4 Gaming

1. PC for Game development, E-Sports **(4 Units)**

Configuration:

CPU: AMD Ryzen 5 5000/7000/8000 x3D processor

RAM: 16 GB

SSD: 1TB

GPU: NVIDIA RTX 4060

2. Monitor: 100 hz + FHD.

3. Keyboard, Mouse, Speaker **(4 Units)**

4. Game Controller **(8 Units)**

5. UPS **(4 Units)**

6. Gigabit Switch **(2 Unit)**

7. Ethernet Cable

8. Projector **(1 Unit)**

5.5 Others

1. Chairs and Tables

2. Secure Storage Cabinet

3. IP camera

6. Expected Outcome and Impact

The creation of this wing within the computer club is designed to have a profound and lasting impact on both the members and the university community. The expected outcomes include:

Enhanced Technical Proficiency:

Members will develop a deeper understanding of critical technologies such as web and mobile development, DevOps practices, Linux-based networking, and game development. This hands-on experience will significantly enhance their technical skills, making them more competitive in the job market.

Portfolio-Worthy Projects:

Students will work on real-world projects that they can showcase in their professional portfolios. These projects will provide valuable experience in their chosen fields and demonstrate their ability to apply learned skills in practical settings.

Collaboration and Recognition:

Through team-based projects and participation in competitions, students will hone their collaborative skills. The projects and outcomes could also gain recognition from external parties, further establishing the university's reputation in tech innovation.

Community Building and Mentorship:

The wing will foster a strong sense of community among students, promoting collaboration, peer learning, and mentorship. This environment will be conducive to long-term skill development, where experienced members guide newcomers, ensuring continuous growth for everyone involved.

7. Future Vision

Looking ahead, this wing has the potential to evolve into a central hub for technology innovation on campus. The future vision includes:

Recognition as a Tech Innovation Hub:

Over time, the wing will become a recognized and integral part of the university's tech ecosystem. It will serve as a center for technical learning, innovation, and project-based work.

Workshops, Hackathons, and Collaborative Events:

The wing will host a variety of events such as workshops, hackathons, and tech talks, not only within the club but also in collaboration with other tech clubs or industry partners. These events will help foster a culture of innovation and collaboration among students and professionals alike.

Alumni and Industry Engagement:

The vision includes establishing strong connections with alumni and industry professionals, who can provide valuable mentorship, guidance, and resources. These relationships will help bridge the gap between academic learning and real-world application.

8. Conclusion

In conclusion, the establishment of this new wing within the computer club represents a significant step toward equipping students with the skills and experience needed to thrive in the technology sector. The benefits of this initiative will extend beyond individual members to the broader university community, fostering collaboration, innovation, and growth.

The club remains committed to creating a culture of continuous learning, mentorship, and support, ensuring that all students have the resources and opportunities to succeed in their respective fields. We kindly seek the support and approval of the relevant university bodies to make this vision a reality, providing the necessary resources to establish this wing and create a lasting impact on the university's tech ecosystem.