# **Logo, company name Description automatically generatedPreliminary Report**

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Description automatically generated**Project Name:** Friendly Fedora

## **Project #:** 22-302

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## **Faculty Mentor:** Professor Vokkarane

## **Industry Mentor:** Mohan Boddu

# **Introduction**

The goal of this project is to develop a Fedora distribution based on the existing Fedora operating system. This Fedora distribution should be easily installable as well as include applications that are universally used by UMass Lowell’s students and faculty. Last year's team continued the progress of this project from the first group who worked on this project. Their major contributions included surveying UML students to better understand what are their preferred qualities of a Linux distribution and assess the Fedora Operating System’s relative popularity, used Linux club documents created in 2020 to start and maintain an official UMass Lowell Open-Source Club (OSC), continued to build and modify packages in preparation for a successful distribution of the Friendly Fedora OS, and worked with UML Computer Science Lab management to promote the use of Fedora OS on their Linux machines [2].

In this report, we provide the following information: an introduction to the project, client information, project information, a problem statement, an objective statement, research pertaining to the differences between popular Linux distribution, a summary of our report context, and a list of references used.

# **Client Information**

This project is sponsored by Red Hat. Red Hat is the world’s leading provider of enterprise open-source solutions—including Linux, cloud, container, and Kubernetes [2]. They deliver established and reliable software solutions that make it easier for global companies to work across platforms and environments, from the core datacenter to the network edge. The open-source development model used by Red Hat allows interested developers to contribute to open-source projects alongside the Red Hat software team [3].

Red Hat has partnered with UMass Lowell on the Friendly Fedora project to develop an understanding of what features are needed to develop the best Fedora distribution for UMass Lowell students and faculty. Their goal is to provide a better Linux experience at the university level and allow Capstone students to gain experience developing, testing, and supporting kernel software [2].

# **Project Information**

## **3.1 Initial Project Description:**

After meeting with our faculty advisor and our industry sponsor, we have been asked to build a “friendly” Fedora Linux system to better serve the students and faculty in the UMass Lowell community. The Fedora distribution should support popular student applications and other features needed for a reliable and full-featured laptop.

This multiyear project has been worked on by two previous capstone teams. The first team made significant research contributions and last year's team added to the progress made on this project by surveying UML students to better understand what are their preferred qualities of a Linux distribution and assess the Fedora Operating System’s relative popularity, using Linux club documents created in 2020 to start and maintain an official UMass Lowell Open-Source Club (OSC), continuing to build and modify packages in preparation for a successful distribution of the Friendly Fedora OS, and working with UML Computer Science Lab management to promote the use of Fedora OS on their Linux machines [3].

## **3.2 Expected Deliverables:**

The following deliverables are expected this semester:

1. Gain a thorough understanding of Fedora Linux distribution.
2. Become familiar with the GitHub source control features.
3. Research the differences between Fedora and other popular Linux distributions with specific emphasis on the Graphic User Interface (GUI).
4. Using previous teams' documentation, design a Fedora distribution that meets the requirements of the UMass Lowell student and faculty community.
5. Design and develop requirements and technical documentation for the Friendly Fedora.

## **3.3 Benefits:**

The following benefits will be established during this project:

1. The packages in this Fedora Distribution will contain features that will enhance the user experience for UMass Lowell students and faculty.

# **Problem Statement**

According to the research done by the first team to work on this project, “Most students and faculty at UMass Lowell do not use Linux as their primary operating system” [1]. It was established that the primary reason why students do not frequently use Linux as their primary operating system is due to the limited applications and features available on Linux operating systems in comparison to other more popular operating systems such as Windows. Fedora and Ubuntu are among the most popular Linux distributions, but students at University of Massachusetts Lowell who use Linux on their laptops usually choose Ubuntu as their primary distribution due to ease of installation [3]. *Therefore, the problem is that out of all the UMass Lowell Linux users, the majority prefer to use an Ubuntu distribution rather than a Fedora distribution. The fundamental characteristic that needs to be implemented to improve the usage rate of Fedora in the UMass Lowell student and faculty community is to meet their operating system needs.*

# **Objective Statement**

The objective of this project is to build a “Friendly Fedora” open-source Linux distribution that enhances the user experience of UMass Lowell’s students and faculty by meeting their operating system needs.

# **Research**

Below is a detailed comparison between Fedora and several other leading Linux distributions. The objective of these comparisons is to identify the positive and negative characteristics of Fedora as well as identifying positive characteristics that other Linux distributions have that could be incorporated into Fedora to improve the user experience.

## **6.1 Fedora vs Ubuntu**

**6.2 Fedora vs OpenSUSE**

**6.3 Fedora vs Linux Mint**

**6.4 Fedora vs Arch**

# **Summary**

Our objective for this project is to build on the work of the previous teams’ progress towards the on-going project of creating a more friendly Fedora distribution for UMass Lowell students and faculty. In this report we discussed the importance of the project, focusing on why a Fedora distribution supporting the operating needs of students and faculty in the UMass Lowell community is important. Along with information about the client of our project, Red Hat, who is the sponsor of the Friendly Fedora project. We also discussed the project’s expected deliverables and benefits, some of which included becoming experienced with Fedora OS and development tools. We also talked about our problem statement and objectives regarding the last team’s research who found that most students don’t use Linux as their primary OS and those who do use Ubuntu based on ease of installation. Our goals include developing a Fedora distribution which has the applications and features available on more popular operating systems, and which is easy to install. Finally, we also discussed the results of our research comparing the GUIs of four different Linux distributions with Fedora.

Last year’s team made significant progress towards the project goal. Our objective is to continue working on the expected deliverables towards a successful distribution of the friendly Fedora OS that would provide many benefits for students and faculty in the UMass Lowell community. Our objective includes sharing the results of our work with the open-source community as well.

# **References**

The references utilize IEEE format and have been listed in the order that they were used throughout this report.

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