Software Engineering Tools Lab

Assignment no. 1

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Differentiate between free software, open source and proprietary software w.r.t. its properties.

Ans:

Free software	Open Source software	Proprietary software
"Free software" means software that respects users' freedom and community.	Open-source software is computer software whose source code is available openly on the internet and programmers can modify it to add new features and capabilities without any cost.	Proprietary software is computer software where the source codes are publicly not available only the company which has created can modify it.
In free software the source code is public.	In open-source software the source code is public.	In proprietary software, the source code is protected.
Free Software can be shared and used by everyone in a non-exclusive way,	Open-source software can be installed on any computer.	Proprietary software can not be installed into any computer

serving the public good.		without a valid license.
A Free Software license allows you to run an unlimited number of installations, without paying extra.	Users do not need to have any authenticated license to use this software.	Users need to have a valid and authenticated license to use this software.
Free software is managed by free software foundation.	Open-source software is managed by an open-source community of developers.	Proprietary software is managed by a closed team of individuals or groups that developed it.
Free Software resists monopolization and improves competition.	It is more flexible and provides more freedom which encourages innovation.	It is not much flexible so there is a very limited innovation scope with the restrictions.
Free Software licenses reinforce independence from vendors and provide more choice in service providers.	Users can get open software free of charge.	Users may have to pay to get the proprietary software.
A Free Software license encourages innovation for your software.	In open-source software faster fixes of bugs and better security are availed due to the community.	In proprietary software, the vendor is completely responsible for fixing malfunctions.
Examples: Google chrome, Mozilla Firefox, Audacity, etc.	Examples: Android, Linux, Firefox, Open Office, GIMP, VLC Media player, etc.	Examples: Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, Adobe Flash Player, Skype, etc.

Enlist some examples along with its purpose and properties (at least 10) of FOSS & proprietary software w.r.t. database.

Ans:

FOSS database s/w: MySQL

- Purpose: For web use.
- Properties:
    1. It is a relational database management system (RDBMS).
    2. It is easy to use.
    3. It is secure.
    4. It follows client-server architecture.
    5. It is free to download.
    6. It supports multi-threading (scalable).
    7. Compatible with many OS.
    8. It allows rollback.
    9. It is platform independent.
    10.   It has GUI support.

Proprietary database s/w: Oracle DB

- Purpose: Running Online Transaction Processing (OLTP) & Data Warehousing (DW).
- Properties:
    1. It has Real Application Clustering and Portability.
    2. Its data is available during the time of planned or unplanned downtimes and failures.
    3. Its layout has complete recovery features to recover data from almost all kinds of failures.
    4. It provides mechanisms to control data access and usage.
    5. Its database supports managing multiple database instances on a single server.
    6. It supports PL/SQL extension for procedural programming.
    7. It is compatible with the standards of industries.

8. It allows users to replicate groups of tables and their supporting objects to multiple sites.
9. It has high transaction processing performance.
10. It allows processing to be split into client and server application programs.

Q.3. Enlist some examples of free open source exam software for online assessment.

Ans:

1. TCExam
2. VirtualX
3. Moodle
4. TAO
5. Kaldin
6. Papershala
7. Edbase
8. Mettl
9. FlexiQuiz
10. Eklavvya
11. Think Exam

Q.4. Demonstrate any one exam software which is open source and freely available.

Ans:

Moodle

Q.5. Demonstrate FOSS software related to database.

Ans:

MySQL

How does exam software work?

Ans:

- **Students' Registration**

  Online exam software helps with the registration process of students and generates unique IDs for them.

- **Test Paper Creation**

  You can create a subjective, objective, multiple-choice, and other types of questions online and ensure zero spam.

- **Take Tests Anytime, Anywhere**

  Students can take tests from anywhere with a stable internet connection and a system. Similarly, teachers can invigilate directly through the system.

- **Automated Evaluation**

  Teachers don't need to evaluate answers manually, as the exam software helps analyze students' performance digitally.

- **Track Students' Progress**

  YouTube broadcast software enables users to list their live streams as videos on their channels. This way the live stream can be seen even after it ended.

- **Data analysis**

  The performance reports include detailed info about the strengths and weaknesses of every student. Accordingly, teachers can make the improvement plan.

Demo of Project Management Software.

Ans:

- ## **Name of s/w:** Jira

- ## **Features:**

1. Agile Development:

Agile is the Jira's fundamental application, and it offers the smooth utilization of all the features of Scrum boards and Kanban boards. Therefore, it can be used for a Scrum, Kanban and hybrid method like Scrumban as well.

2. Jira Project Tracking

This issue tracking software tracks ongoing project at any stage. Using JQL, the customized query language of Jira allows you to filter or sort issues based on the various criteria. The sidebar allows accessing immediate details about planning, releasing, tracking, and reporting. With this flexible planning tool, you can create tasks and stories from any screen. In addition, the drag and drop feature makes it simple to create sprints and epics in the backlog.

3. Mobile Applications

In addition to desktop and on-premise system, the tool supports remote teams on diverse locations. The Jira project management tool comes with native mobile applications that are compatible with Android and iOS devices. Hence, users can stay online as well as engaged anytime.

4. Reports in Jira

Jira delivers the relevant information in a convenient format called reports. There are numerous reports available in JIRA, which enables you to gain visibility of the situation. In addition, these reports offer project statistics throughout the entire lifecycle. For example, the Burndown chart displays the actual as well as the estimated amount of work to be finished in the sprint.

5. Jira Security

The security settings of Jira bug tracking software restricts the access of certain bug to only those people who are allowed to work on the bug or a team member of the given security level. You can set your bug's security level when it is created or when it is being edited. Likewise, there is a security feature like Default Permission Scheme. New projects are assigned under this scheme by default. In addition, the permission schemes allow you to make a set of permissions as well as apply the same to any project.

6. Unparalleled Connectivity with Jira Add-Ons

As the Jira is equipped with flexible Java APIs & REST, you can easily extend its power and make it function in line with your business terms. Moreover, the 800+ add-ons & plugins for Jira available in the Atlassian Marketplace allow you to control everything about a product.

7. Great Product Integrations

The integration features of Jira software make the software development simpler and easier together with other tools including Atlassian tools like Confluence. You can also keep your development and IT team integrated for fast issue resolutions by integrating Jira software with Jira Service Desk.

8. Issue Creation

Now no need to copy from the user's emails to excel sheet anymore. Jira features support in creating tasks, feature requests, bug reports, and helpdesk tickets. There are two convenient ways to create issues:

Emails - Sending a mail to a pre-configured email address

Web – Filling the form given on the respective web page

10. Real-Time Notification

Equipped with notification features, Jira ensures to offer the required information to its users when they indeed need it. There are configurable email alerts when the issues are updated and there are optional emails to send the remainder for overdue tasks.

11. Extensive Jira Search

With a Jira bug tracker, you can find what you're seeking in seconds. You can save your searches as a filter and reuse them again. The flexible searching option applies to customizable tools too.

12. Activity Log

Jira software keeps track of all activities, updates, as well as work logged against your issues. For instance, every issue & its updates, people assignment and comments from the developing team are tracked under the activity log. Thereby you can achieve better collaboration and visibility with your development teams.

13. Issue Templates

Jira allows you to create issues easily using its templates like predefined process and subtasks. You can also customize your own Jira issue and save as a template for future use. This feature allows your team to perform better as it enables the automatic prefilling of main fields.
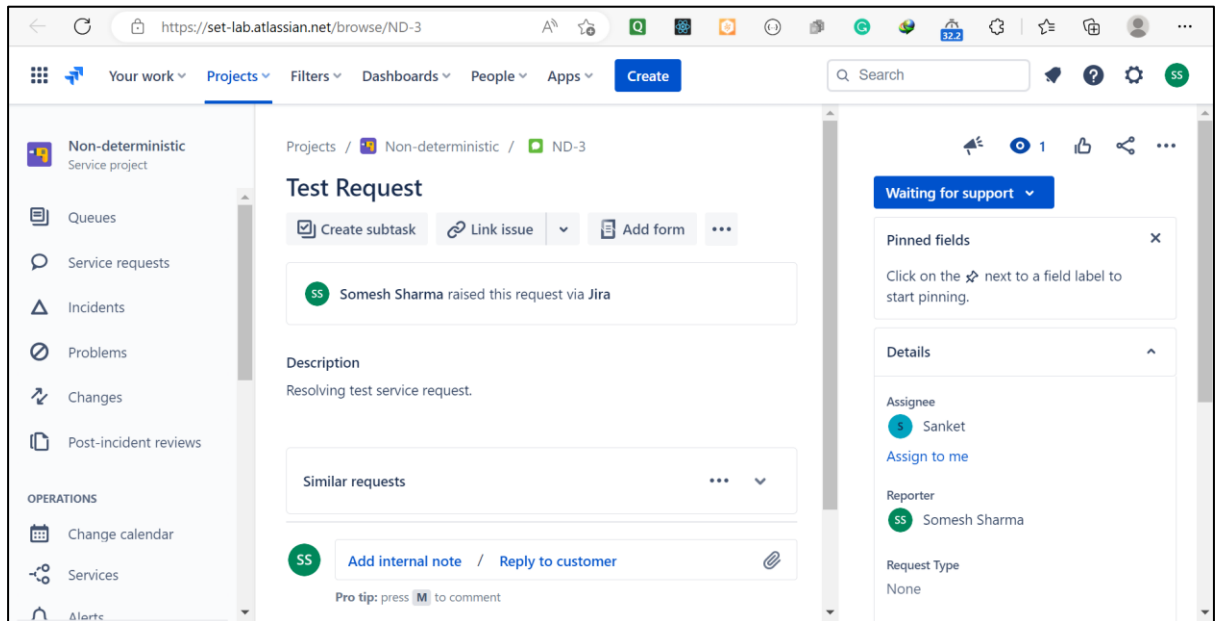
14. Jira Dashboard

The dashboard is the first thing that you can see once you log onto your Jira software. The admin can customize the dashboard's view and the things displayed on it. A dashboard typically displays apps and gadgets that expose various sorts of information to support the team members to track their project's progress.

15. Time Tracking With Color Indication

Jira employs three colors (Blue, Orange, and Green) to track the amount of time spent on a given issue.

- **<u>Features used:</u>**
  Creating a 'Test Request' and assigning to members.

  Resolving the requests.