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Assignment - 1 : Introduction to Foss

Q1] Differentiate in between free software, Open Source software and proprietary software with respect to its properties.

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Properties	Free Software	Open Source Software	Proprietary Software
1) Cost	Free	Free	May be paid or free
2) License	Permissive	Permissive / Copyleft	Proprietary
3) Source code access	Yes	Yes	No
4) Modification	Allowed	Allowed	Limited or not Allowed
5) Distribution	Allowed	Allowed	Limited or not Allowed
6) Ownership	community / User	community / User	Corporation / Individual
7) Examples	GNU / Linux OS, Apache web server s/w	Linux OS, MySQL DBMS	MS Windows, Adobe Photoshop

Q2] Enlist some examples along with its purpose and properties of FOSS and proprietary software with respect to database.

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1] MySQL (FOSS) - A widely used relational database management system, known for its reliability, ease of use, and high performance. Purpose: To manage and store large amounts of structured data. Properties: scalable, open-source, and has a large community of developers.

2] Oracle Database (Proprietary) - A high performance relational database management system used in entreprise level applications. Purpose: To manage large amounts of mission-critical data. Properties: Robust security features, scalability and reliability.

3] PostgreSQL (FOSS) - An open source relational database management system known for its advanced features, reliability, and high performance. Purpose: To store and manage large amounts of structured data. Properties: supports SQL and NoSQL data, ACID (Atomicity, consistency, Isolation, Durability) compliant, and has a strong community of developers.

4] Microsoft SQL Server (Proprietary) - A popular relational database management system used in enterprise applications. Purpose : To manage and store large amount of structured data. Properties : scalable, has robust security features, and supports various programming languages.

5] MongoDB (FOSS) - A widely used NoSQL document database that is designed to be flexible and scalable. Purpose : supports JSON data, has automatic sharding and provides real time analytics. Properties : to store and manage large amounts of unstructured or semi-structured data.

6] Cassandra (FOSS) - A highly scalable NoSQL database management system designed for high availability and fault tolerance. Purpose : To store and manage large amounts of structured and semi-structured data. Properties : supports both SQL and NoSQL data, has automatic data replication, and can handle large amount of writes :

7] IBM Db2 (Proprietary) - A high performance relational database management used for enterprise applications. Purpose : To manage and store large amounts of structured data.

Properties: Scalable, secure, and has robust data warehousing capabilities.

8) Redis (FOSS) - An in memory data structure store used as a database, cache and message broker. Purpose: To store and retrieve data in real time with high performance. Properties: Supports multiple data structures, has publ sub messaging capabilities and provides atomic operations.

9) CouchDB (FOSS) - A document oriented NoSQL database that provides a Restful API for data access. Purpose: To store and manage large amounts of unstructured data. Properties: Supports multiple programming languages, has a built-in web server and provides conflict resolution mechanisms.

10) Amazon Aurora (Proprietary) - A relational database management system designed to be compatible with MySQL and PostgreSQL and offered as a service by Amazon Web Services. Purpose: To provide a highly scalable and reliable database solution for web and mobile applications. Properties: Supports read replicas, has automatic failover, and provides low latency data access.

Q3] Enlist some examples of free open source exam software for online assessment.

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1] Exam Builder : A simple and user friendly online exam software with features such as question bank, randomization and data export.

2] Ilias : A comprehensive e-learning platform with a wide range of features, including online exams, assignments and quizzes.

3] Moodle : A popular open-source learning management system (LMS) with a wide range of features including online exams, assignment and quizzes.

4] ATutor : An accessible and flexible LMS with features such as online exams, quizzes, and assessments.

5] eFront : A feature-rich LMS with a focus on online exams and assessments, including support for multiple question types, randomization and reporting.

6] OpenOLAT : An e-learning platform with a focus on online exams and assessments, including features such as question pools, randomization, and reporting.

7) Docebo LMS: A cloud based LMS with features such as online exams and quizzes and assessments.

8) Totara learning: A flexible and customizable LMS with features such as online exams and assessments.

9) Canvas LMS: A cloud based LMS with features of online assessments and exams, along with tools for grading, reporting and collaboration.

10) Schoology LMS: It is also same as Convas LMS which provides online assessments and tools for grading and reporting.

Q4. Demonstrate any one exam software which is open source and freely available.

Ans.
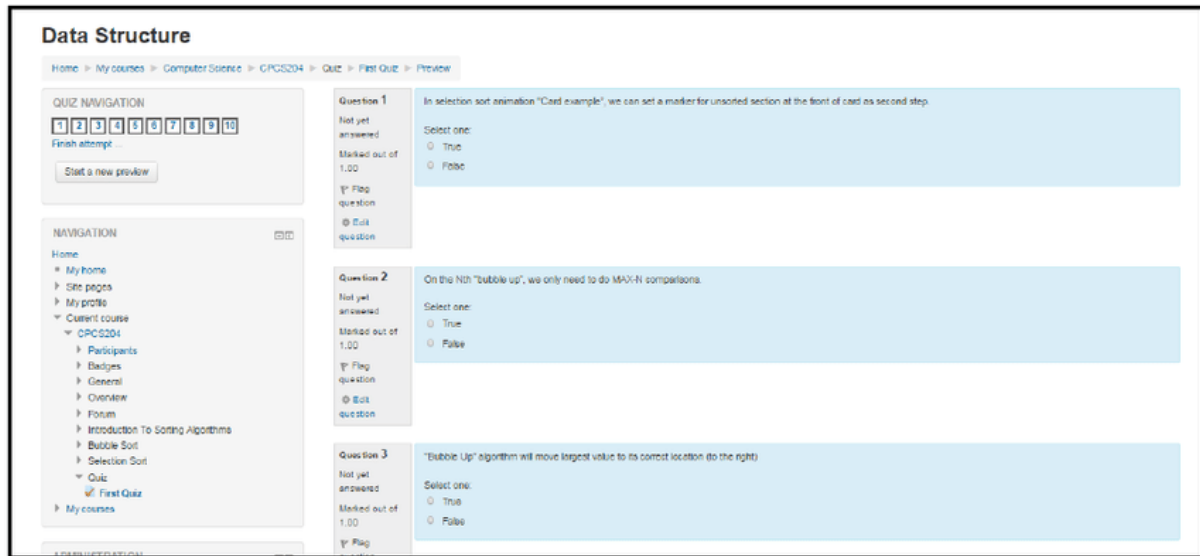
Steps to Setup an Exam on Moodle Opensource Software :

1. Go to your Moodle course page and turn editing on.
2. Add the Quiz activity to your course.
3. Under Timing, enter the window of time that you would like the exam to open and close along with the maximum time allowed for the exam (time limit)
4. Add Grade and Layout information per your preferences.

Q 5] Demonstrate FOSS software related to database.

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1] MySQL : A widely used relational database management system.

2] PostgreSQL : An object - relational database management system known for its strong reliability and performance

3] MongoDB : A NoSQL document oriented database management system.

4] SQLite : A software library that provides a relational database management system.

5] MariaDB : A community - driven fork of MySQL, with improved performance and reliability.

6] Redis : An in - memory data structure store that can be used as a database, cache and message broker.

7] CouchDB : A document - oriented NoSQL database that uses JSON for data storage.

8] Cassandra : A distributed NoSQL database designed for high availability and scalability.

Q6) How does the Exam software work?

1) The exam software is a computer program that enables the creation, administration, and grading of exams or tests. It typically consists of two main components: the server-side software and client side software.

2) The server side software is responsible for storing and managing exam questions, student answers and exam results. It also provides security features, such as preventing cheating by monitoring for suspicious behaviour.

3) The client-side software is what the student interacts with during the exam. It displays the exam questions, accepts the student's answers and communicates with the server side software to securely transmit exam results.

4) Exam software can be delivered through a web browser or a standalone application and may offer various customization options, such as setting time limits, customizing the look and feel, and enabling different question types (eg: multiple choice, short answer, etc.