**Assignment No 1**

Software Engineering Tools Lab

Name: Samrat Vishwas Jadhav

PRN: 2020BTECS00006

Batch: T5

Q.1) Differentiate in between free software, Open source software and proprietary software with respect to its properties.

| S.No. | Open Source software | Proprietary Software |
| --- | --- | --- |
| 01. | 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. |
| 02. | Here the software is developed and tested through open collaboration. | Here the software is developed and tested by the individual or organization by which it is owned not by the public. |
| 03. | In open-source software the source code is public. | In proprietary software, the source code is protected. |
| 04. | Open-source software can be installed on any computer. | Proprietary software can not be installed into any computer without a valid license. |
| 05. | 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. |
| 06. | 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. |
| 07. | 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. |
| 08. | Users can get open software free of charge. | Users must have to pay to get the proprietary software. |
| 09. | 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. |
| 10. | Limited Intellectual Property Protections | Full Intellectual Property Protections |
| 11. | Usually Developed and Maintained by non-profit organizations. | Usually Developed and Maintained by for-profit entities. |
| 12. | Examples are Android, Linux, Firefox, Open Office, GIMP, VLC Media player, etc. | Examples are Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, Adobe Flash Player, Skype, etc. |

| S.No. | Free Source Software | Open source software |
| --- | --- | --- |
| 1. | It was coined by the Free Software Foundation in the 1980s. | In response to the restrictions of free software, the phrase “open source” was coined in the late 1990s. |
| 2. | Software is an important part of people’s lives. | Software is just software. There are no ethics associated directly with it. |
| 3. | Software freedom translates to social freedom. | Ethics are to be associated with the people not with the software. |
| 4. | Freedom is a value that is more important than any economical advantage. | Freedom is not an absolute concept. Freedom should be allowed, not imposed. |
| 5. | Every free software is open source. | Every open-source software is not free software. |
| 6. | There is no such issue that exists in free software. | There are many different open-source software licenses, and some of them are quite restricted, resulting in open-source software that is not free. |
| 7. | No restrictions are imposed on free software. | Open-source software occasionally imposes some constraints on users. |
| 8. | Examples: The Free Software Directory maintains a large database of free software packages. Some of the best-known examples include the Linux kernel, the BSD and Linux operating systems, the GNU Compiler Collection and C library; the MySQL relational database; the Apache web server; and the Sendmail mail transport agent. | Examples: Prime examples of open-source products are the Apache HTTP Server, the e-commerce platform Open Source Commerce, internet browsers Mozilla Firefox, and Chromium (the project where the vast majority of development of the freeware Google Chrome is done), and the full office suite LibreOffice. |

Q.2) Enlist some examples along with its purpose and properties (at least 10) of FOSS and proprietary software with respect to database.

* Examples of FOSS: GNU/Linux, Mozilla Firefox, VLC media player, SugarCRM, GIMP, VNC, Apache web server, LibreOffice, jQuery.
* Properties of FOSS:

1. Better flexibility
2. Cost effectiveness
3. Enhanced reliability
4. Increased scalability
5. Licensing convenience
6. Quicker integration
7. Improved security

* Examples of proprietary software: Microsoft Windows, Adobe Flash Player, PS3 OS, iTunes, Adobe Photoshop, Google earth, macOS, Skype, WinRAR, Oracle's version of java and some versions of Unix.
* Properties of proprietary software:

1. Increased functionality and convenience
2. Superior customer support
3. Lower maintenance costs
4. Predictable releases

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

**Free Open Source Exam Software List for Online Assessment**

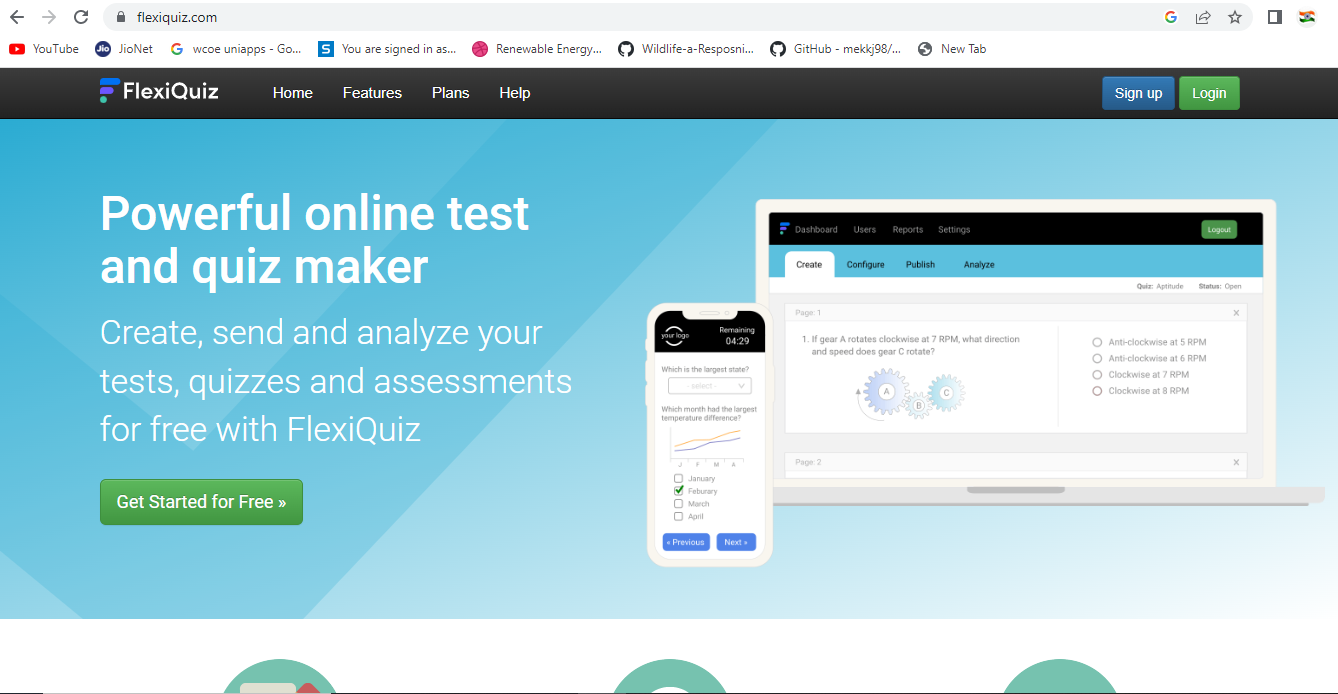
* [TCExam](https://www.techjockey.com/blog/7-free-open-source-exam-software#tcexam)
* [VirtualX](https://www.techjockey.com/blog/7-free-open-source-exam-software#virtualx)
* [Moodle](https://www.techjockey.com/blog/7-free-open-source-exam-software#moodle)
* [TAO](https://www.techjockey.com/blog/7-free-open-source-exam-software#tao)
* [Kaldin](https://www.techjockey.com/blog/7-free-open-source-exam-software#Kaldin)
* [Papershala](https://www.techjockey.com/blog/7-free-open-source-exam-software#papershala)
* [Edbase](https://www.techjockey.com/blog/7-free-open-source-exam-software#edbase)
* [Mettl](https://www.techjockey.com/blog/7-free-open-source-exam-software#mettl)
* [FlexiQuiz](https://www.techjockey.com/blog/7-free-open-source-exam-software#flexiquiz)
* [Eklavvya](https://www.techjockey.com/blog/7-free-open-source-exam-software#eklavya)
* [Think Exam](https://www.techjockey.com/blog/7-free-open-source-exam-software#think_exam)

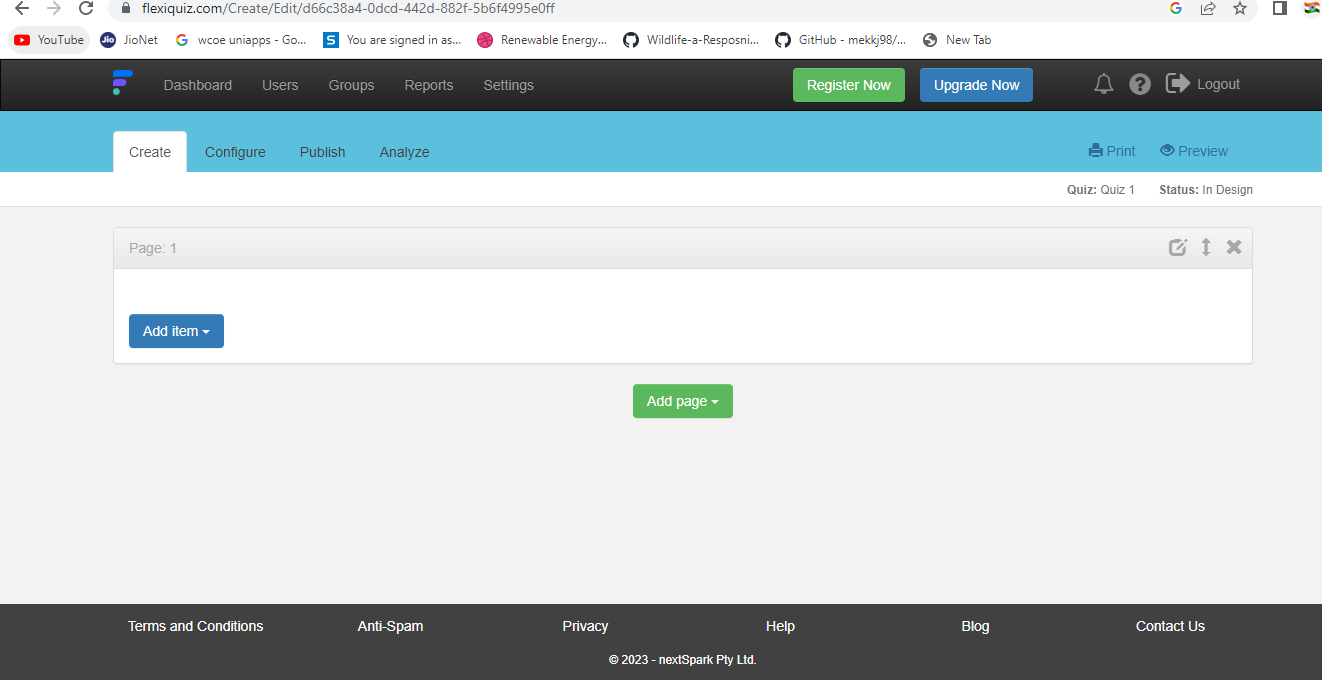
Q4. Demonstrate any one exam software which is open source and freely available.

FlexiQuiz is a cloud-based exam maker where educators can quickly create, share, and analyze custom exams. We can choose from hundreds of configurable features to build professional exams that engage students and test their knowledge on any subject. The platform includes features such as; question banks, time limits, question randomization, email notifications, 9 question types, and the ability to add images, video, or audio.

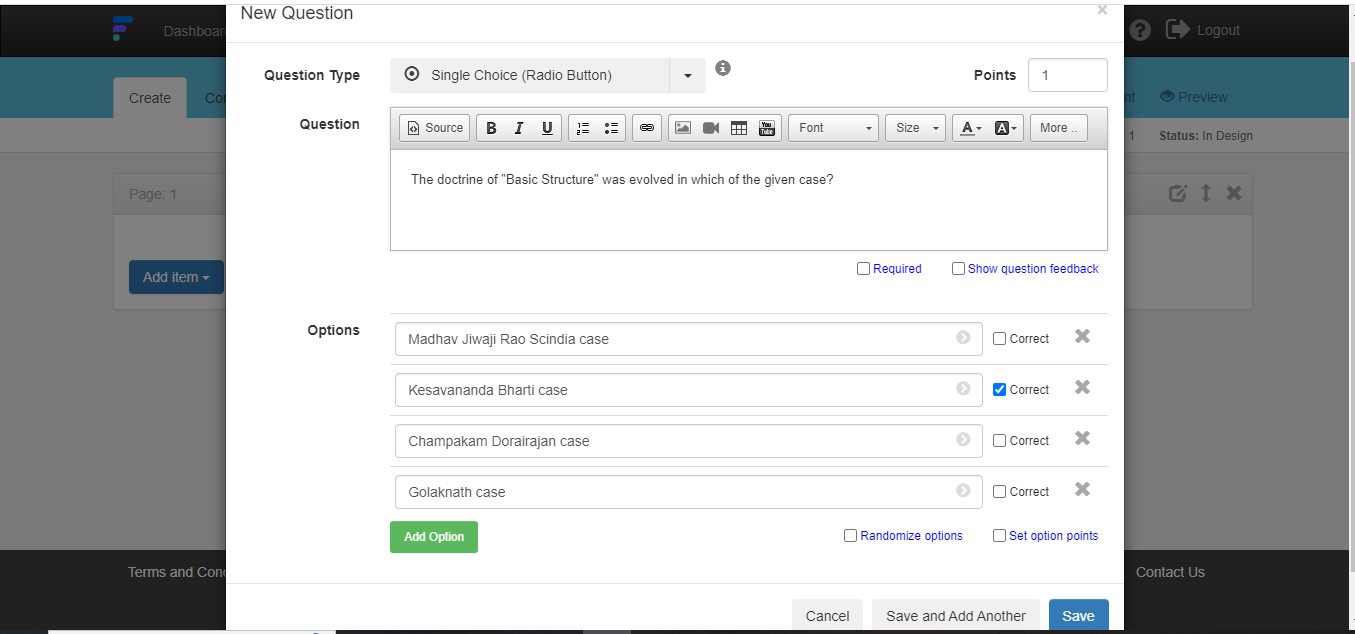
Features: Auto-grading, powerful reports, schedule your tests, public and private tests, custom email invites, include images, free plan option, mobile ready, multiple question types, secured with SSL encryption, PDF reports, advanced configuration options, timed tests, respondent accounts, access anywhere, include video.

Interface

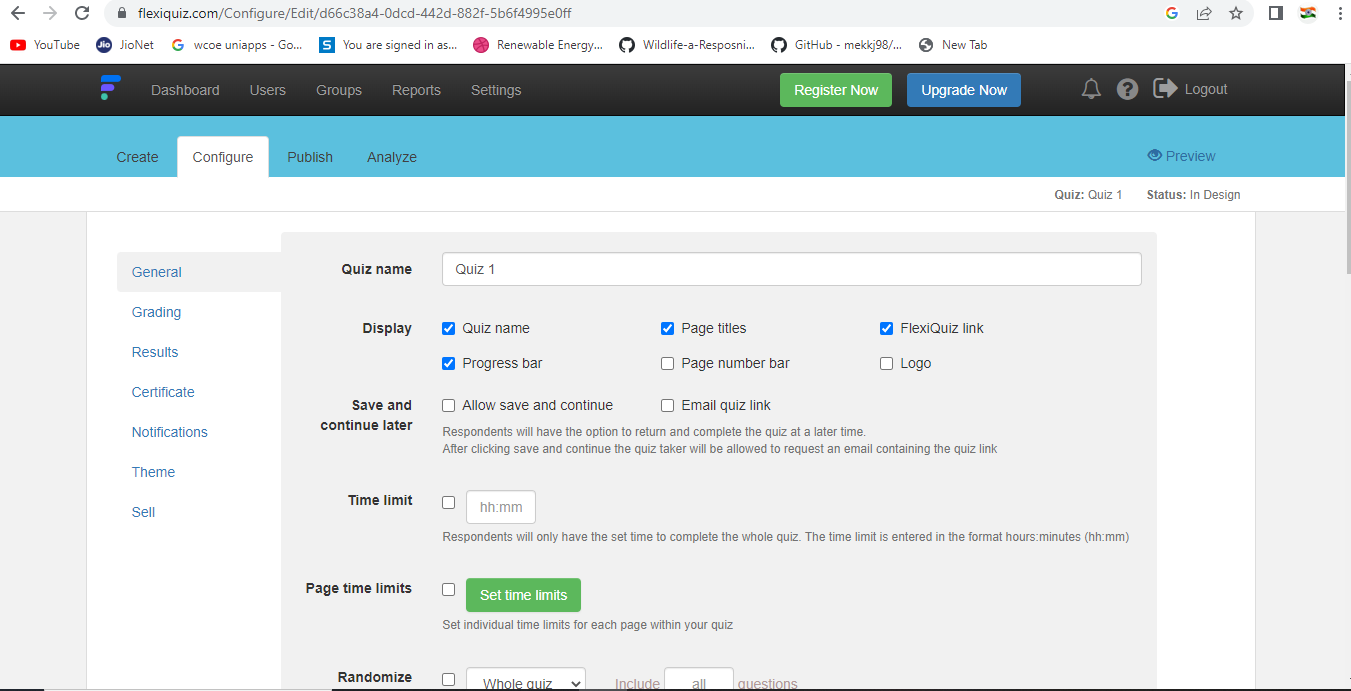




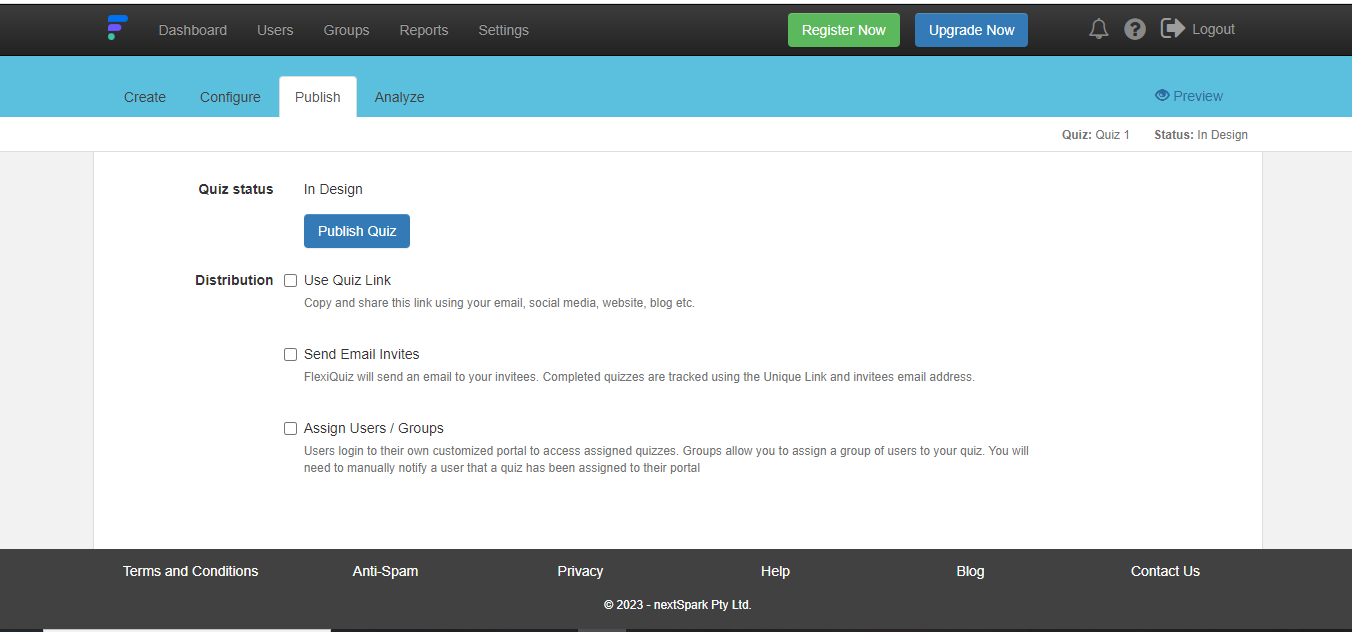
Create



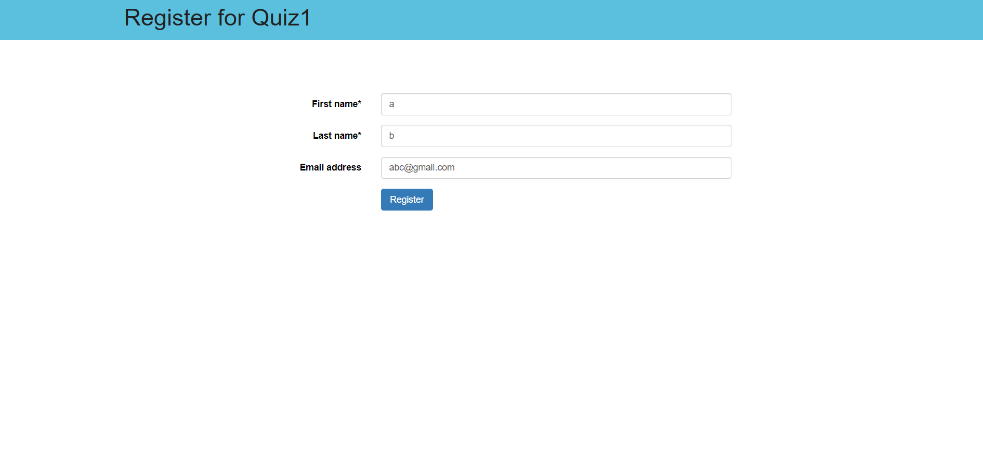
Configure

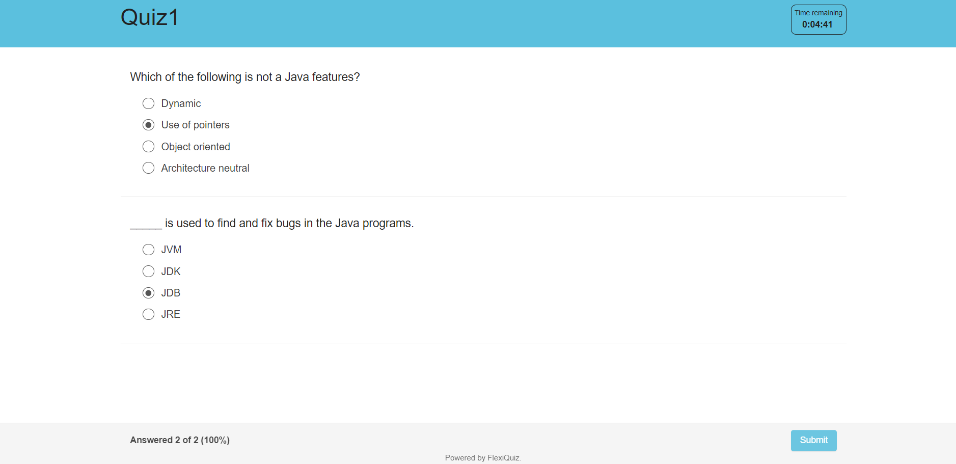


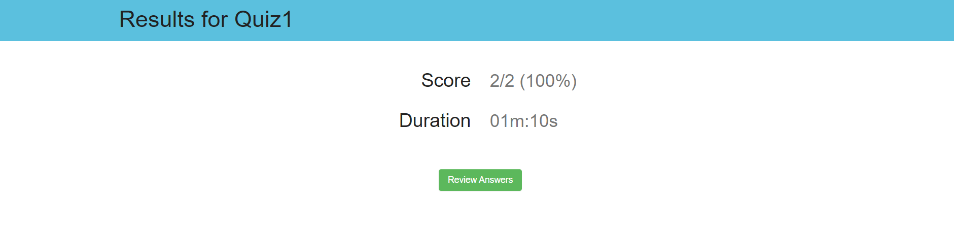
Publish

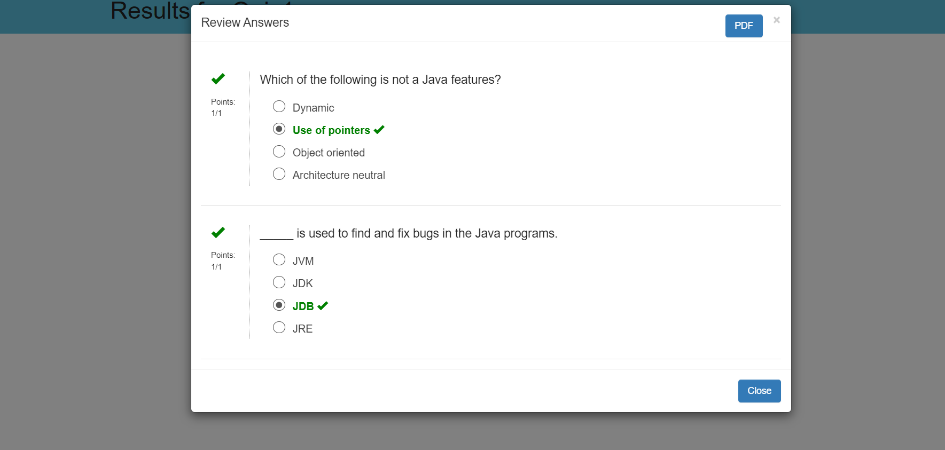


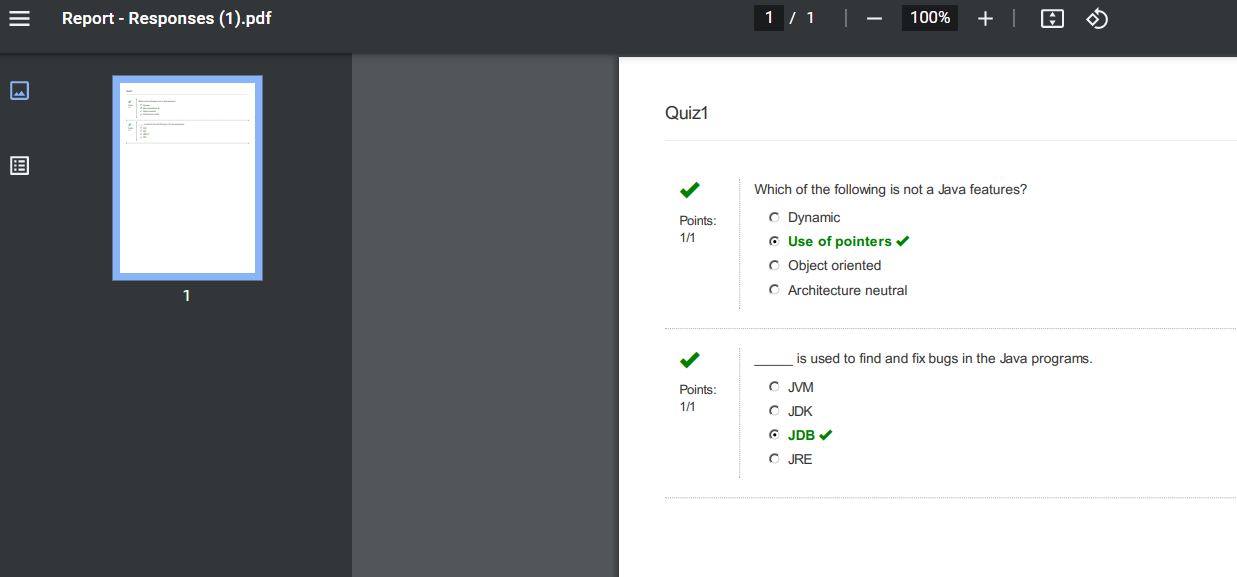
Test



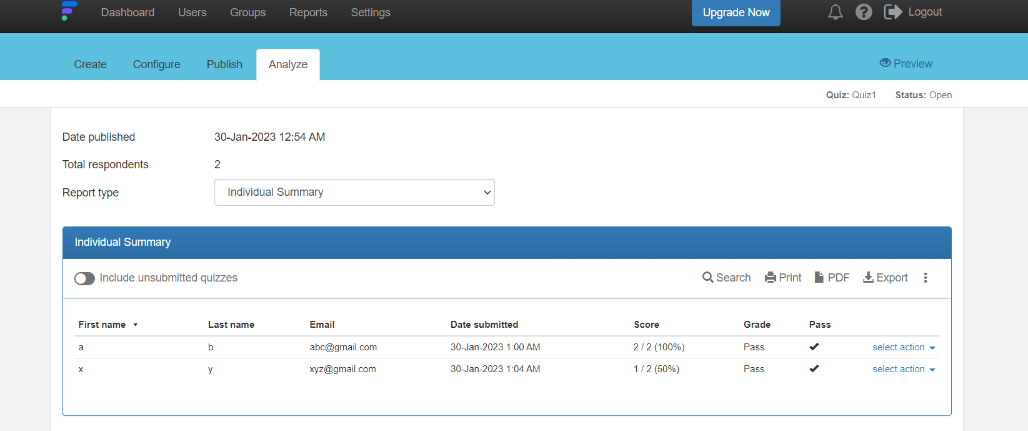








Analyze

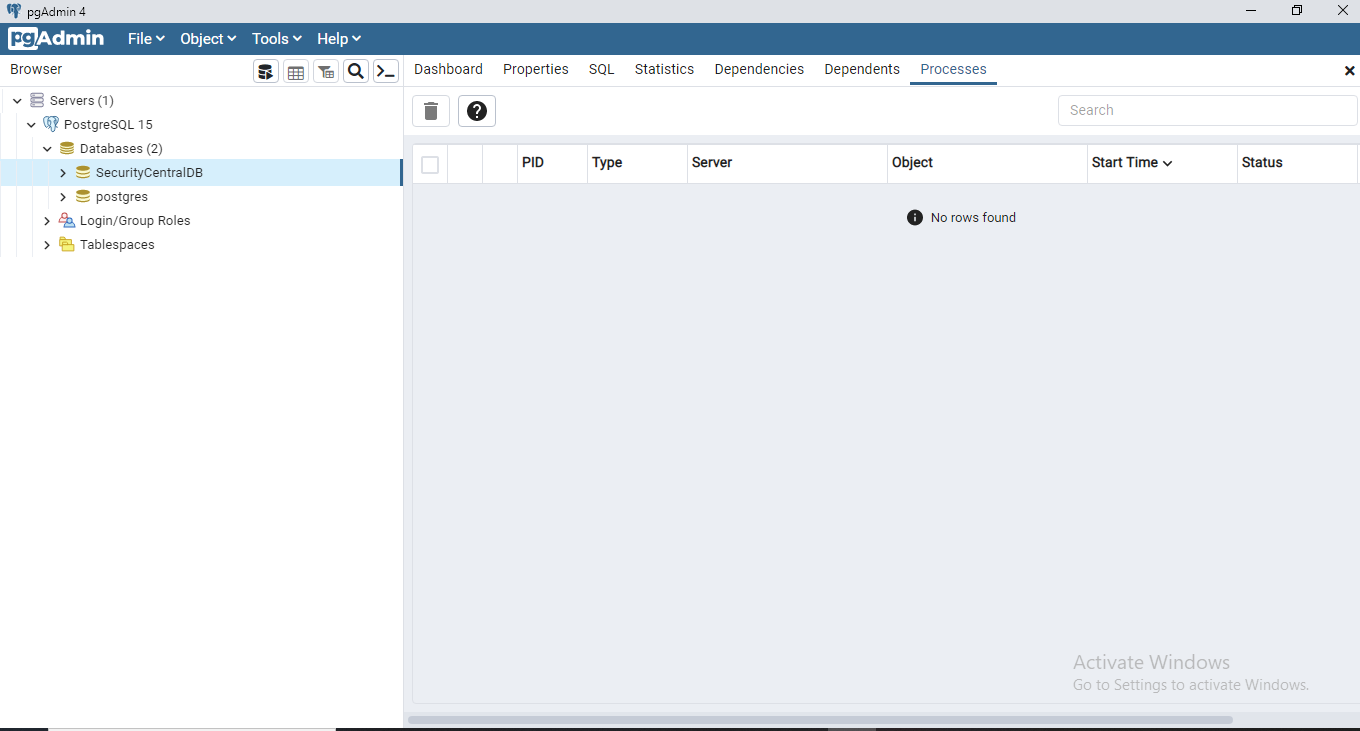


Q5. Demonstrate FOSS software related to database.

🡪 MongoDB is a popular open-source NoSQL database written in C++. MongoDB is a Dynamic Schema Document-Oriented Database that stores data in JSON-like documents.

Each database is made up of collections, which are made up of documents. Because of the varying number of fields, each document can be unique. Each document’s size and content may differ from one another. MongoDB is a database that is highly scalable and performance-oriented.

PostgreSQL is one of the most advanced general-purpose object-relational database management system and is open-source. Being an open-source software, its source code is available under PostgreSQL license, a liberal open source license. Anyone with the right skills is free to use, modify, and distribute PostgreSQL in any form. As it is highly stable, very low effort is required to maintain this DBMS. It is written in *C* programming language.



Connecting to postgres database from vs code using the connection string

import configparser

import psycopg2

from sqlalchemy import create\_engine

config = configparser.ConfigParser()

config.read\_file(open(r'config.ini'))

DSN = config.get('DB', 'host')

DB = config.get('DB', 'database')

UID = config.get('DB', 'user')

PWD = config.get('DB', 'password')

PORT = config.get('DB', 'port')

url = "postgresql://"+UID + ":"+PWD+"@"+DSN+":"+PORT+"/"+DB

conn\_string = (url)

def getConnection():

    db = create\_engine(conn\_string)

    conn = db.connect()

    print('connected using url in sqlchemy')

    return conn

def getConnection2():

    conn = psycopg2.connect(conn\_string)

    print('connected in psycopg2 through automatic call')

    return conn

if \_\_name\_\_ == "\_\_main\_\_":

    conn = getConnection()

    conn = getConnection2()

    cur = conn.cursor()

    sql1 = '''select \* from solution where id=651;'''

    # sql1=''''''

    cur.execute(sql1)

    for i in cur.fetchall():

        print(i)

Config file to pass the essential credential

[DB]

host=localhost

database=SecurityCentralDB

user=postgres

password=samrat123

port=5432

Fetching result from database using the query

sql1 = '''select \* from solution where id=651;'''

    cur.execute(sql1)

    for i in cur.fetchall():

        print(i)

Result:s

(651, 'Apache Commons Codec Plug-in', datetime.datetime(2023, 2, 2, 15, 9, 42, 935559, tzinfo=datetime.timezone(datetime.timedelta(seconds=19800))))

Q6. How does the Exam software work?

Remote proctoring is usually represented by a cloud-based solution that can easily be integrated into a Learning Management System (LMS) or a test platform. Different types of proctoring come with various customizable features, so educators can configure the assessments in compliance with their objectives. When it comes to the process of test-taking, an online proctored exam usually consists of the following steps,

1. Verification: The system verifies students’ identities by comparing an image from their web cameras and a photo or a scan of their authentication documents. Once they’ve passed this procedure, they are allowed to commence the test.
2. Real time monitoring: Online proctoring implies continuous student invigilation. It helps educators spot and prevent any suspicious activities. Depending on the proctoring type, the role of an observer can be taken by a human proctor or by AI-based software.
3. Data storage and review: As soon as the exam is finished, proctoring software analyses the results and forms the reports. It’s important to note, that all audio and video data is recorded and stored, thus, making it possible to review documentation in case of any controversies.

• 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.

• Features used:

Creating a ‘Test Request’ and assigning to members.

