

**Software Engineering Tools Lab**  
**Assignment No-1**  
**(Module 1- Introduction to FOSS)**

**PRN: 2020BTECS00033**

**Name: Prathamesh Raje**

**Batch: T6**

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

**Ans:**

**Free Software:**

1. “Free software” means software that respects users’ freedom and community.
2. Roughly, it means that the users have the freedom to run, copy, distribute, study, change and improve the software.
3. The term “free software” is sometimes misunderstood—it has nothing to do with price. It is about freedom.
4. Freedom is a value that is more important than any economical advantage.

**Open source Software:**

1. 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.
2. Here the software is developed and tested through open collaboration.
3. This software is managed by an open-source community of developers.
4. It provides community support, as well as commercial support, which is available for maintenance.
5. We can get it for free of cost.
6. This software also sometimes comes with a license and sometimes does not. This license provides some rights to users.
7. The software can be used for any purpose
  - Allows to study how the software works
  - Freedom to modify and improve the program
  - No restrictions on redistribution

Some examples of Open source software include Android, Ubuntu, Firefox, Open Office, etc.

**Proprietary Software:**

1. Proprietary software is computer software where the source codes are publicly not available only the company that has created them can modify it.
  2. Here the software is developed and tested by the individual or organization by which it is owned not by the public.
  3. This software is managed by a closed team of individuals or groups that developed it.
  4. We have to pay to get this software and its commercial support is available for maintenance.
  5. The company gives a valid and authenticated license to the users to use this software. But this license puts some restrictions on users also like.
  6. Number of installations of this software into computers  
Restrictions on sharing of software illegally  
Time period up to which software will operate  
Number of features allowed to use
- Some examples of Proprietary software include Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, etc.

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

**Ans:**

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

Properties of FOSS:

- i. Better flexibility
- ii. Cost effectiveness
- iii. Enhanced reliability
- iv. Increased scalability
- v. Licensing convenience
- vi. Quicker integration
- vii. 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:

- i. Increased functionality and convenience
- ii. Superior customer support
- iii. Lower maintenance costs
- iv. Predictable releases

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

**Ans:**

Free Open Source Exam Software List for Online Assessment

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

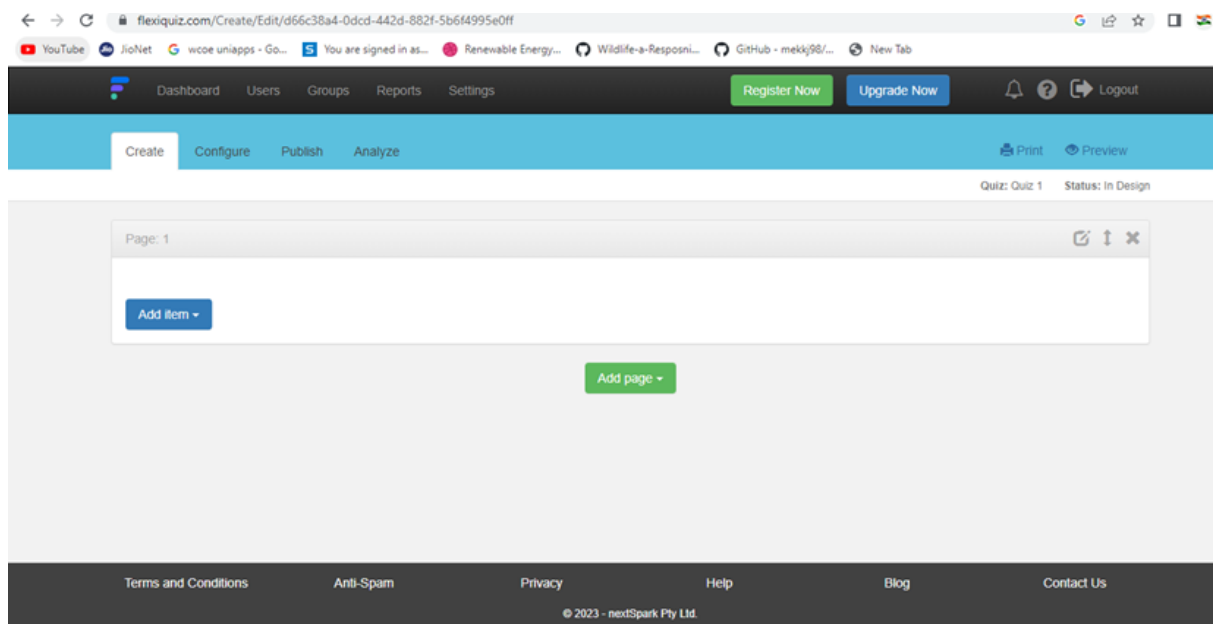
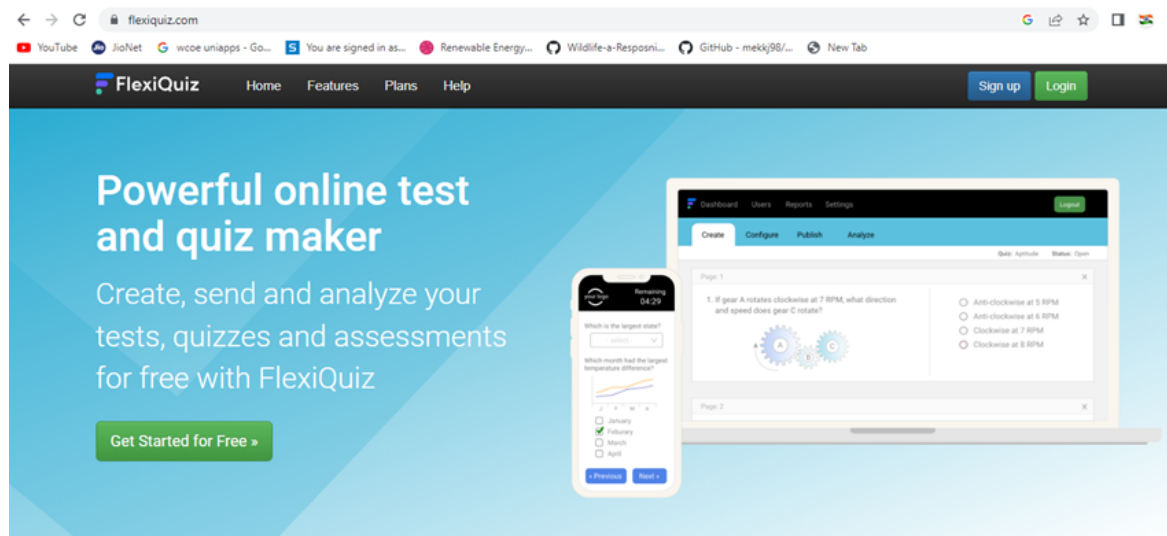
### **4. Demonstrate any one exam software which is open source and freely available.**

**Ans:**

1. FlexiQuiz is a cloud-based exam maker where educators can quickly create, share, and analyze custom exams.
2. We can choose from hundreds of configurable features to build professional exams that engage students and test their knowledge on any subject.
3. 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.

4. 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.

5. Interface



6. Create

**New Question**

Question Type: Single Choice (Radio Button) Points: 1

Question: The doctrine of "Basic Structure" was evolved in which of the given case?

Options:

- Madhav Jiwaji Rao Scindia case ☐ Correct
- Keshavananda (Bharti) case ☒ Correct
- Champakam Dorairajan case ☐ Correct
- Golaknath case ☐ Correct

[Add Option](#) ☐ Randomize options ☐ Set option points

[Cancel](#) [Save and Add Another](#) [Save](#)

## 7. Configure

[flexquiz.com/Configure/Edit/056c38a4-0dcd-442d-882f-5b6f4995e0ff](#)

[Dashboard](#) [Users](#) [Groups](#) [Reports](#) [Settings](#) [Register Now](#) [Upgrade Now](#) [Logout](#)

[Create](#) [Configure](#) [Publish](#) [Analyze](#) [Preview](#)

Quiz: Quiz 1 Status: In Design

**General**

Quiz name: Quiz 1

**Display** ☒ Quiz name ☒ Page titles ☒ FlexiQuiz link

☒ Progress bar ☐ Page number bar ☐ Logo

**Save and continue later** ☐ Allow save and continue ☐ Email quiz link

Respondents will have the option to return and complete the quiz at a later time. After clicking save and continue the quiz taker will be allowed to request an email containing the quiz link.

**Time limit** ☐ hh:mm

Respondents will only have the set time to complete the whole quiz. The time limit is entered in the format hours:minutes (hh:mm)

**Page time limits** ☐ [Set time limits](#)

Set individual time limits for each page within your quiz

**Randomize** ☐ Whole quiz Include all questions

## 8. Publish

Dashboard

Users

Groups

Reports

Settings

Register Now

Upgrade Now

Logout

Create

Configure

Publish

Analyze

Preview

Quiz: Quiz 1    Status: In Design

Quiz status

In Design

Publish Quiz

Distribution

☐ Use Quiz Link

Copy and share this link using your email, social media, website, blog etc.

☐ Send Email Invites

FlexiQuiz will send an email to your invitees. Completed quizzes are tracked using the Unique Link and invitees email address.

☐ Assign Users / Groups

Users login to their own customized portal to access assigned quizzes. Groups allow you to assign a group of users to your quiz. You will need to manually notify a user that a quiz has been assigned to their portal

Terms and Conditions

Anti-Spam

Privacy

Help

Blog

Contact Us

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## 9. Test

### Register for Quiz1

First name\*

a

Last name\*

b

Email address

abc@gmail.com

Register

## Quiz1

Time remaining  
0:04:41

Which of the following is not a Java features?

- ☐ Dynamic
- ☒ Use of pointers
- ☐ Object oriented
- ☐ Architecture neutral

\_\_\_\_\_ is used to find and fix bugs in the Java programs.

- ☐ JVM
- ☐ JDK
- ☒ JDB
- ☐ JRE

Answered 2 of 2 (100%)

Powered by [HiceQuiz](#)

Submit

## Results for Quiz1

Score 2/2 (100%)

Duration 01m:10s

[Review Answers](#)

### Results

#### Review Answers

PDF



Which of the following is not a Java features?

Points:  
1/1

- ☐ Dynamic
- ☒ Use of pointers ✓
- ☐ Object oriented
- ☐ Architecture neutral

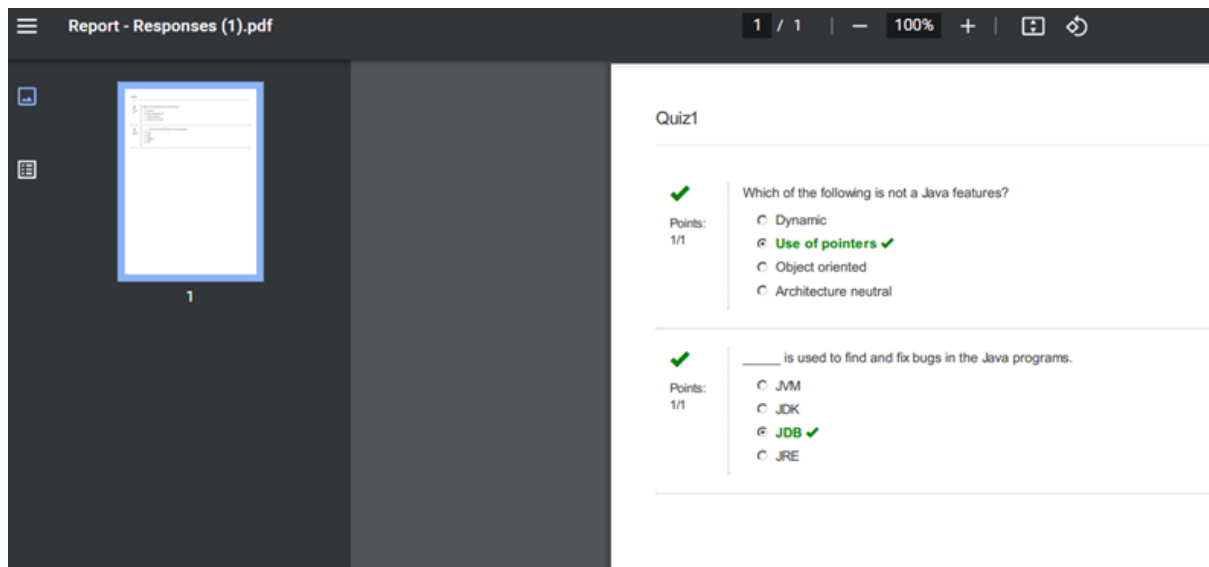


\_\_\_\_\_ is used to find and fix bugs in the Java programs.

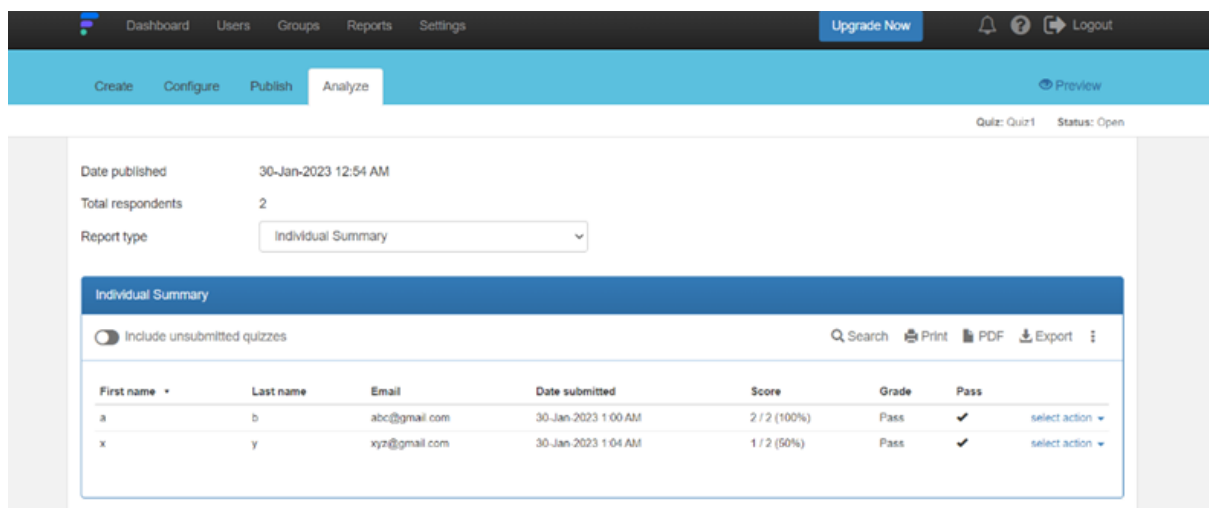
Points:  
1/1

- ☐ JVM
- ☐ JDK
- ☒ JDB ✓
- ☐ JRE

Close



## 10. Analyze



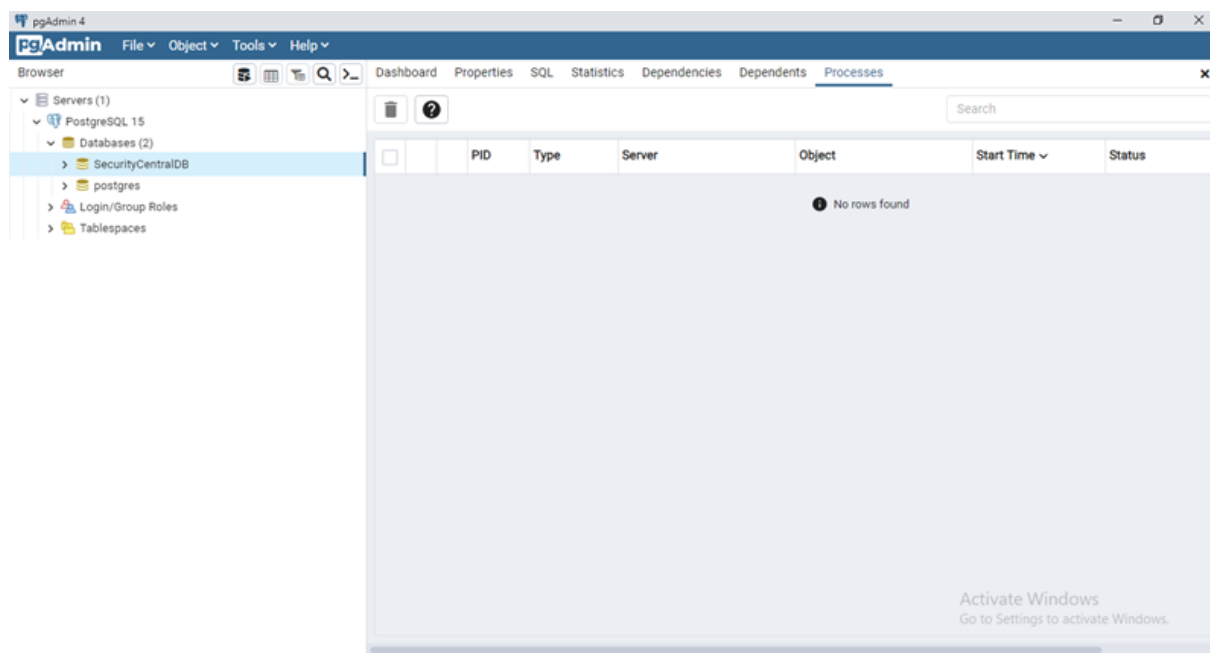
## 5. Demonstrate FOSS software related to database.

Ans:

1. MongoDB is a popular open-source NoSQL database written in C++.
2. MongoDB is a Dynamic Schema Document-Oriented Database that stores data in JSON-like documents.
3. Each database is made up of collections, which are made up of documents.
4. Because of the varying number of fields, each document can be unique.
5. Each document's size and content may differ from one another.
6. MongoDB is a database that is highly scalable and performance-oriented.



7. PostgreSQL is one of the most advanced general-purpose object-relational database management system and is open-source.
8. Being an open-source software, its source code is available under PostgreSQL license, a liberal open source license.
9. Anyone with the right skills is free to use, modify, and distribute PostgreSQL in any form.
10. 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 sqlalchemy')
    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)

```

### **Results:**

```

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

```

## **6. How does the Exam software work?**

**Ans:**

1. 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.
2. Different types of proctoring come with various customizable features, so educators can configure the assessments in compliance with their objectives.
3. When it comes to the process of test-taking, an online proctored exam usually consists of the following steps,
  - I. 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.
  - II. 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.
  - III. 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.