

## ASSIGNMENT - 1

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

**Free software** is a type of **software** that gives its users the right to run, copy, distribute, study, change and improve the software. Hence, free **software** is more related to freedom than price so think of it as freedom of speech rather than free lunch.

It is also called libre software where “libre” means freedom. Moreover, with free software, you even have the right to sell the software for money.

Examples: Apache Web Server, MySQL RDBMS, etc.

Every open-source software is not free software.

The main difference between open source and free software is that open source emphasizes the availability of the source code and the rights of users to modify and distribute it, while free software emphasizes that the software can be obtained and used without cost.

Every free software is open source.

Every open-source software is not 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 freeware.

There is no such issue that exists in free software.

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.

## 1. Open source Software:

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. Here the software is developed and tested through open collaboration. This software is managed by an open-source community of developers. It provides community support, as well as commercial support, which is available for maintenance. We can get it for free of cost. This software also sometimes comes with a license and sometimes does not. This license provides some rights to users.

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.

2. Proprietary Software: Proprietary software is computer software where the source codes are publicly not available only the company that has created them can modify it. Here the software is developed and tested by the individual or organization by which it is owned not by the public. This software is managed by a closed team of individuals or groups that developed it. We have to pay to get this software and its commercial support is available for maintenance. 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.

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.

## S.No. OPEN-SOURCE 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.
02. Here the software is developed and tested through open collaboration.
03. In open-source software the source code is public.
04. Open-source software can be installed on any computer.
05. Users do not need to have any authenticated license to use this software.
06. Open-source software is managed by an open-source community of developers.

## PROPRIETARY SOFTWARE

Proprietary software is computer software where the source codes are publicly not available only the company which has created can modify it. Here the software is developed and tested by the individual or organization by which it is owned not by the public. In proprietary software, the source code is protected. Proprietary software can not be installed into any computer without a valid license. Users need to have a valid and authenticated license to use this software. Proprietary software is managed by a closed team of individuals or groups that

## **S.No. OPEN-SOURCE SOFTWARE**

- 07. It is more flexible and provides more freedom which encourages innovation.
- 08. Users can get open software free of charge.
- 09. In open-source software faster fixes of bugs and better security are availed due to the community.
- 10. Limited Intellectual Property Protections
- 11. Usually Developed and Maintained by non-profit organizations.
- 12. Examples are Android, Linux, Firefox, Open Office, GIMP, VLC Media player, etc.

## **PROPRIETARY SOFTWARE**

developed it.

It is not much flexible so there is a very limited innovation scope with the restrictions.

Users must have to pay to get the proprietary software.

In proprietary software, the vendor is completely responsible for fixing malfunctions.

Full Intellectual Property Protections

Usually Developed and Maintained by for-profit entities.

Examples are Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, Adobe Flash Player, Skype, etc.

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

### **1 PostgreSQL**

PostgreSQL is an object-relational database management system, founded on July 8, 1996. Developed by the PostgreSQL Global Development Group, it is written in C and works in most UNIX-like operating systems and Windows.

#### **Features**

- a. PostgreSQL works with every significant language and middleware.
- b. It bolsters simultaneous control.
- c. Its server-side programming usefulness is extremely full-grown.
- d. It has support for JSON licences.

### **2 MariaDB**

MariaDB is a network created relational database management software system, written in C, C++, Bash and Perl. The stable version 10.3.12 of this free and open source database management software has the date January 7, 2019. MariaDB Corporation AB and MariaDB Foundation are the developers of this database.

#### **Features**

- a. MariaDB is comparable to MySQL, with some additional features. It can be viewed as an evolved variant of MySQL.
- b. Programming in MariaDB is covered by BSD, GPL, and LGPL licences.
- c. The framework uses a rearranged and standard questioning language.
- d. It supports an assortment of working frameworks and programming dialects.
- e. It offers special help for PHP.

### 3 CockroachDB

CockroachDB is a distributed SQL (newSQL) database built on a transactional and strongly-consistent key-value store. It's heavily inspired by Google's Spanner and has many similarities with it.

#### Features

- a. Distributed or replicated OLTP
- b. Multi-data centre deployments
- c. Multi-region deployments
- d. Cloud migrations
- e. Cloud-native infrastructure initiatives

### 4 Neo4j

Neo4j is a graph database management system. Its stable version 3.5.1 was released on December 20, 2018.

#### Features

- a. It is ACID (atomicity, consistency, isolation, and durability) compliant.
- b. It encourages versatility.
- c. Replicates information with quality and security.
- d. It works with Web applications for recovering chart information.
- e. It bolsters enquiry information sent out to JSON and XLS design.

### 5 CouchDB

CouchDB has been developed by the Apache Software Foundation, and is written in Erlang language. The stable version 2.3.0 was released on December 6, 2018.

### Features

- a. It is ACID compliant.
- b. Has a distributed design with replication.
- c. CouchDB gives accessibility such as parcel resilience, ensuring competency.
- d. The information in the CouchDB framework is stored as 'records'.

## 6 RethinkDB

RethinkDB is an open source database that, in contrast to customary database frameworks, stores data in the JSON (JavaScript Object Notation) group. It's viewed as a NoSQL (Not only SQL) database, just like MongoDB, Cassandra, and CouchDB.

### Features

- a. No mapping or table structure is required for putting away the data.
- b. Distributed engineering helps it to scale (in groups).
- c. It has:

Consistency (similar information can be viewed by all the customers of the framework)

Availability

Partition tolerance

## 7 Redis

Redis is an open source (BSD authorised), in-memory information structure store, used as a database, reserve and message dealer. It enhances information structures — for example, strings, hashes, records, sets, arranged sets with extend enquiries, bitmaps, hyperlogs, and geospatial files.

### Features

- a. In-memory data store
- b. Flexible data structures
- c. Simplicity and ease-of-use
- d. Replication and persistence
- e. High availability and scalability

## 8 SQLite

SQLite is a C programming library. The word 'lite' in the name indicates that the organisation, arrangement, and basic source of the database is lightweight. Created by D. Richard Hipp on August 17, 2000, the stable version of SQLite 3.26.0 was released on December 1, 2018.

#### Features

- a. SQLite programming enhances cross-stage document design.
- b. It needs less programming. The whole library is under 500 KiB in size.
- c. It has a static composing group, which is usable in most SQL database motors.
- d. SQLite utilises variable-length records.
- e. The SQL explanations are compiled into virtual machine code.

#### 9 Cassandra

Cassandra comes from the stable of the Apache Software Foundation, and is a free and open source DBMS written in Java. Authorised under Apache License 2.0, its stable version 3.11.3 was released on August 1, 2018.

#### Features

- a. Apache Cassandra is a NoSQL database.
- b. It supports replication and multi-server farm replication.
- c. It is adaptable and reliable.
- d. A distributed database, its conveyance plan relies on Amazon DynamoDB and information model on Google Cloud Bigtable.
- e. Cassandra can run on sensitive equipment and perform quick writes to store a lot of information.

#### 10 Timescale

New technologies require new sorts of databases. One of the best open source databases for the Internet of Things is Timescale.

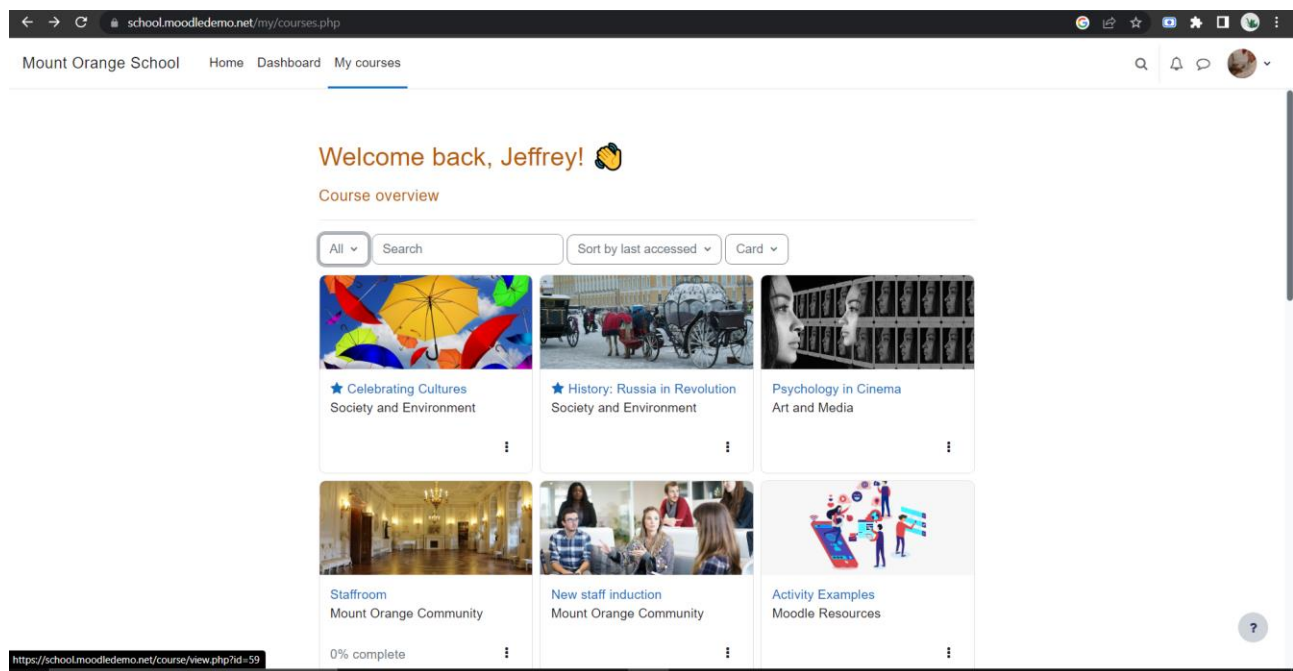
#### Features

- a. Hypertable abstraction layer
- b. Automatic partitioning
- c. Optimised time based constraint exclusion
- d. Works across time-series and relational tables
- e. Built-in flexible time bucketing

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

TCEexam  
VirtualX  
Moodle  
TAO  
Kaldin  
Papershala  
Edbase  
Mettl  
FlexiQuiz  
Eklavya  
Think Exam

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



← → ↺ school.moodledemo.net/course/view.php?id=69

Mount Orange School Home Dashboard My courses

🔍 🔔 👤 Edit mode

✕

▼ ... and breathe!

○ Course noticeboard

○ About this course

○ Prior experience check

How mindful an educator...

▼ Why this course?

● Help build our understand...

● Let's talk about stress!

○ The Freiburg Mindfulness...

○ The need for mindfulness

▼ Mindful teaching

○ What we as teachers can...

● (Research paper) Mindful...

○ Your personal action plan

○ Supporting our learners


▼ Course check and feed


## Mindful course creation

Course Settings Participants Grades Reports More ▼


▼ ... and breathe! [Collapse all](#)

Create your course and give your learners a mindful, stress-free experience with the new features of Moodle 4.0.



 FORUM  
Course noticeboard

To do: View

 BOOK

To do: View

?



Mount Orange School

Home

Dashboard

My courses

Grader report

















All participants: 11/11

First name 

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Last name 

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

First name / Last name	Email address	Assignment: Requireme...	Peer Assessment: Rate ...	Peer Assessment: R
 Frances Banks	 francesbanks231@example.com	-	-	-
 Mark Ellis	 markellis267@example.com	-	-	-
 Brian Franklin	 brianfrankli228@example.com	-	-	-
 Barbara Gardner	 barbaragardner249@example.com	-	-	-
 Amanda Hamilton	 amandahamilton205@example.com	-	-	-
 Joshua Knight	 joshuaknight196@example.com	-	-	-
 George Lopez	 georgelopez271@example.com	-	-	-
 Anthony Ramirez	 anthonyramirez359@example.com	-	-	-
Overall average		-	-	-

Questions

Question bank

Select a category: Default for Alpinism (5)

The default category for questions shared in context 'Alpinism'.

No tag filters applied

Filter by tags...


☐ Show question text in the question list

Search options

☒ Also show questions from subcategories

☐ Also show old questions

Create a new question ...

Question	Actions	Status	Version	Created by	Comments	Needs checking?	Usage	Last used	Modified by	Facility index	Discriminative efficiency
Question name / ID number				First name / Last name / Date					First name / Last name / Date		
<input type="checkbox"/> Video		Ready	v1	Admin User 27 November 2011, 1:45 PM	0	-	0	Never	Admin User 27 November 2011, 3:28 PM	N/A	N/A

Mount Orange School Home Dashboard My courses

Quiz: Test your knowledge on Alpinism

Receive a grade

This quiz contains a variety of questions to test your knowledge of Alpine mountaineering. At the end of the quiz you will be given your score with suggestions for improvement.

Preview quiz

Attempts allowed: 3

Grading method: Highest grade

Quiz navigation

Jeffrey Sanders

1 2 3 4

Finish attempt ...

Start a new preview

Question 1

Not yet answered

Marked out of 1

Flag question

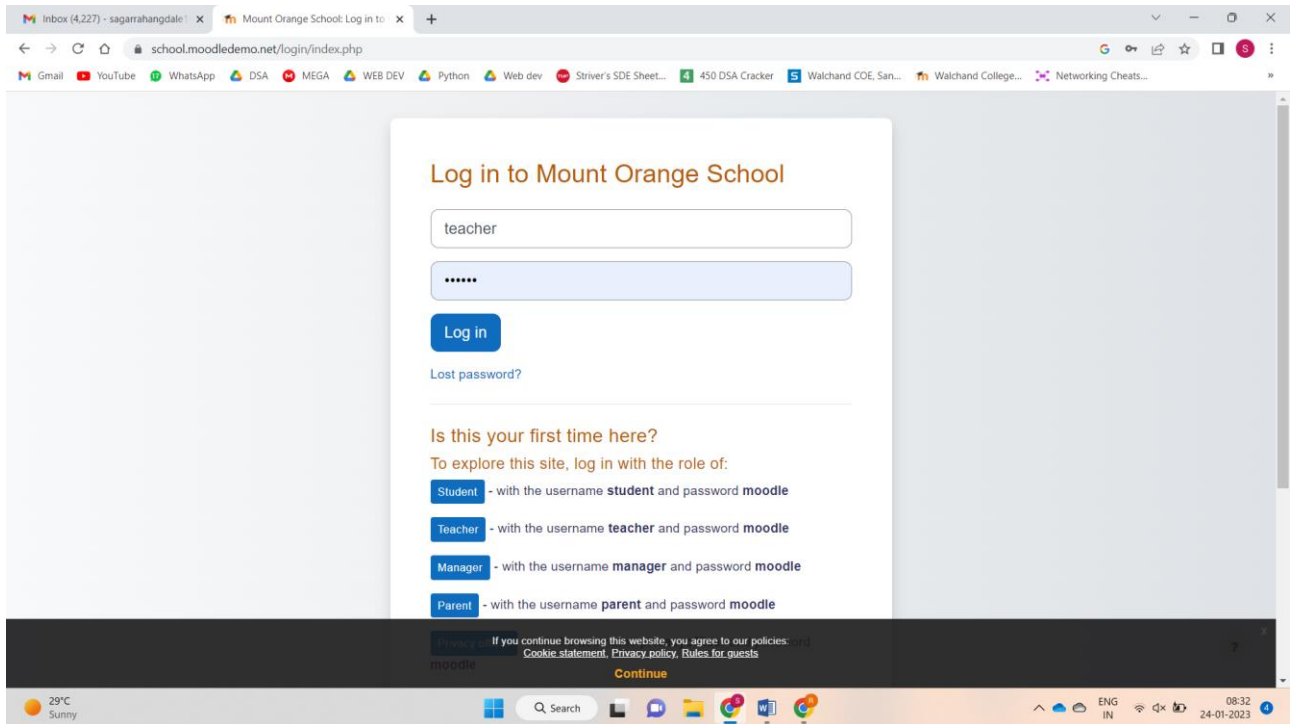
Edit question

The Mer de Glace has receded by 1 kilometre (0.62 miles) in the last 130 years. True? Or false?

Select one:

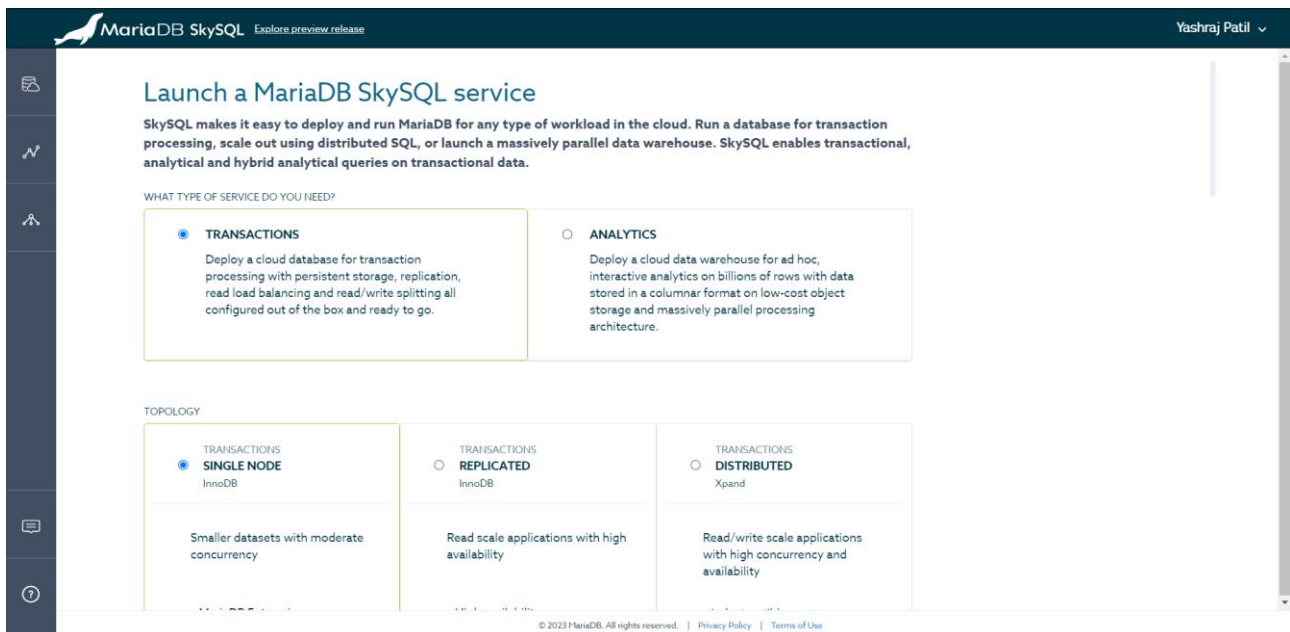
29°C Sunny


24-01-2023








## 5. Demonstrate FOSS software related to database.

### MariaDB





 MariaDB SkySQL [Explore](#) [preview](#) [release](#)

Yashraj Patil



CLOUD PROVIDER

 Google Cloud

 aws

REGION

AMERICAS

northamerica-northeast1  
Montréal, Canada

us-central1  
Council Bluffs, USA

us-east1  
Moncks Corner, USA

us-east4  
Ashburn, USA

us-west1  
The Dalles, USA

us-west2  
Los Angeles, USA

EMEA

europa-north1  
Helsinki, Finland

europa-west1  
St. Ghislain, Belgium

europa-west2  
London, UK

europa-west3  
Frankfurt, Germany

europa-west4  
Eemshaven, Netherlands

europa-west9  
Paris, France

APAC


asia-northeast1  
Tokyo, Japan

asia-southeast1  
Jurong West, Singapore






asia-southeast2  
Jakarta, Indonesia

australia-southeast1  
Sydney, Australia

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 MariaDB SkySQL [Explore](#) [preview](#) [release](#)

Yashraj Patil



View cost [per hour](#) [per month](#)

INSTANCE SIZE	CPU	MEMORY	COST (PER NODE)
Sky-2x8	2 vCPU	8 GB	\$0.1702 / hour
Sky-4x16	4 vCPU	16 GB	\$0.3405 / hour
Sky-4x32	4 vCPU	32 GB	\$0.4942 / hour
Sky-8x32	8 vCPU	32 GB	\$0.6810 / hour
Sky-8x64	8 vCPU	64 GB	\$0.9883 / hour

Looking for more powerful instances? Check out our [Power](#) service offering.

TRANSACTIONAL STORAGE SIZE (GB)

Transactional data storage uses Google Cloud SSD persistent disk. With this storage type IOPS are correlated to disk size. [Learn more](#)

100

SERVER VERSION


We recommend using the latest version of MariaDB Enterprise Server. [Read Release Notes](#)

MariaDB Enterprise Server 10.6.8-4

SERVICE NAME

Service names can be up to 24 characters long. Names must start with a letter, and only include lowercase letters, numbers, and hyphens.

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 MariaDB SkySQL [Explore preview release](#)

Yashraj Patil

Your Services

Monitoring

Allowlist for Monitor/Analysis

Configuration Manager

Remote Observability Service

Support

Documentation

## Your services

+ Launch new service

yashraj


Pending

Single Node Transactions

us-west1


FOUNDATION TIER

CONNECT TO SERVICE



Service launch in progress (0%)

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 MariaDB SkySQL [Explore preview release](#)

Yashraj Patil

Your Services

Monitoring

Allowlist for Monitor/Analysis

Configuration Manager

Remote Observability Service

Support

Documentation

## Your services

+ Launch new service

yashraj

Healthy

Single Node Transactions

us-west1

FOUNDATION TIER

CONNECT TO SERVICE

SERVICE DETAILS

Size

Sky-2x8

Version

MariaDB Enterprise Server 10.6.8-4

Created

16:23:36 2023-01-31

TX Storage

100 GB

Read-write port

5021

Fully Qualified Domain Name

yashraj-db00009199.mdb0003538.db.skysql.net

CUSTOMIZATION

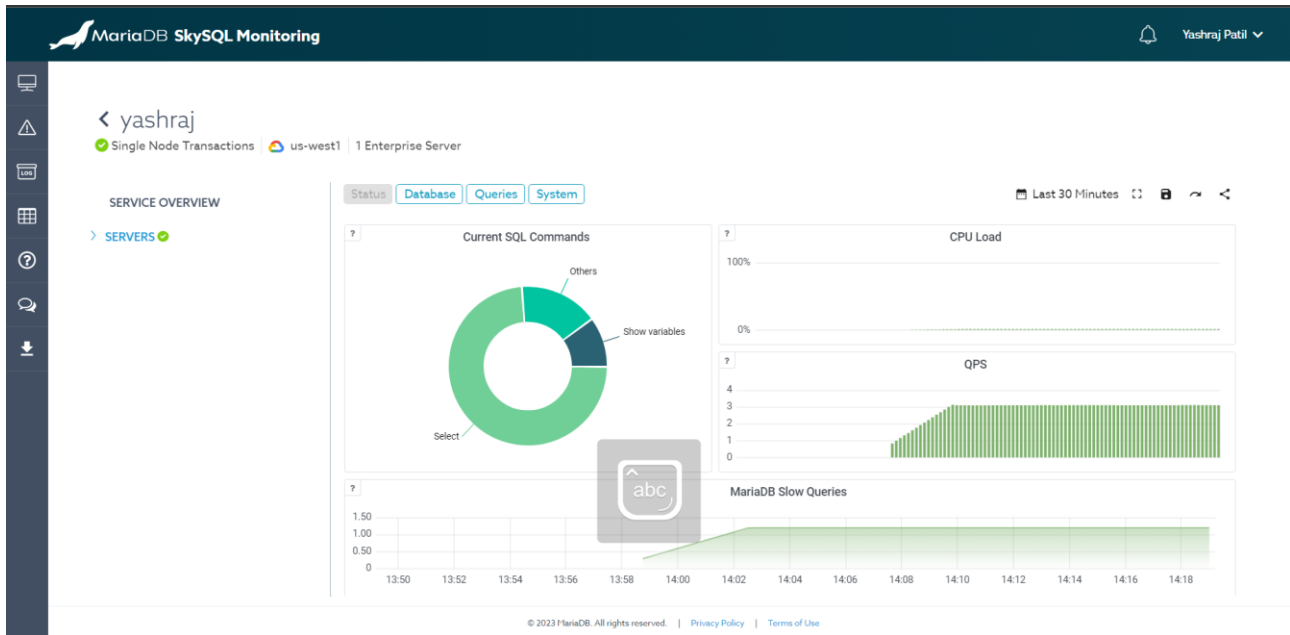
Custom configuration

+ Apply custom configuration

SPENDING

Fetching price and usage data

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## Cockroach DB

The image shows the CockroachDB Migrations page for a cluster named 'magic-falcon'. The page is divided into several sections:

- Header:** CockroachDB, Yashraj Patil's Organization, and a 'Connect' button.
- Left Sidebar:** Navigation menu with options: Overview, SQL Users, Metrics, SQL Activity, Databases, Jobs, Backups, and Migrations (selected).
- Migrations Section:**
  - Schema Conversion Tool:** A section for migrating database schema. It includes a description: 'Migrate your database schema to this cluster. To start, upload a .sql file and select a dialect. Read more about using the Schema Conversion Tool.' and a large 'C' icon.
  - Migrations:** A section for managing migrations. It includes a description: 'Migrations with no errors can be finalized. To finalize a migration, open it and click Finalize Migration.' and a 'Migrations' icon.

cockroachlabs.cloud/cluster/create?accountcreated=success

Cancel

Create your cluster

Choose a Plan

Serverless

Highly available clusters that scale instantly. Only pay for what you use.

Free forever option

250M Request Units free

5 GB Storage free

Dedicated

Dedicated single-tenant clusters starting at \$330/month.

Free 30-Day trial

Multi-region capabilities

VPC Peering and IP allowlisting

Cloud provider

AWS

Regions

Mumbai (ap-south-1)

Spend limit

\$0

Cluster name

magic-falcon

Summary

Plan

Serverless

Cloud

AWS

Region

Mumbai (ap-south-1)

Performance

Run queries and use storage up to your spend limit.

\$0 maximum/month

Create your free cluster

CockroachDB

Yashraj Patil's Organization

magic-falcon | CockroachDB v22.2.2

Actions

Connect

Overview

SQL Users

Metrics

SQL Activity

Databases

Jobs

Backups

Migrations

Migrations > Schema Conversion Tool

sample-sql-file-10-rows.sql

Summary Report

Statements

Summary Report

LAST UPDATED JANUARY 31, 2023 AT 2:05 PM GMT+5:30

2 Statements Total

0 Errors

No errors to review.

1 Compatibility Note

TINYINT not supported encountered 1 time.

2 Suggestions

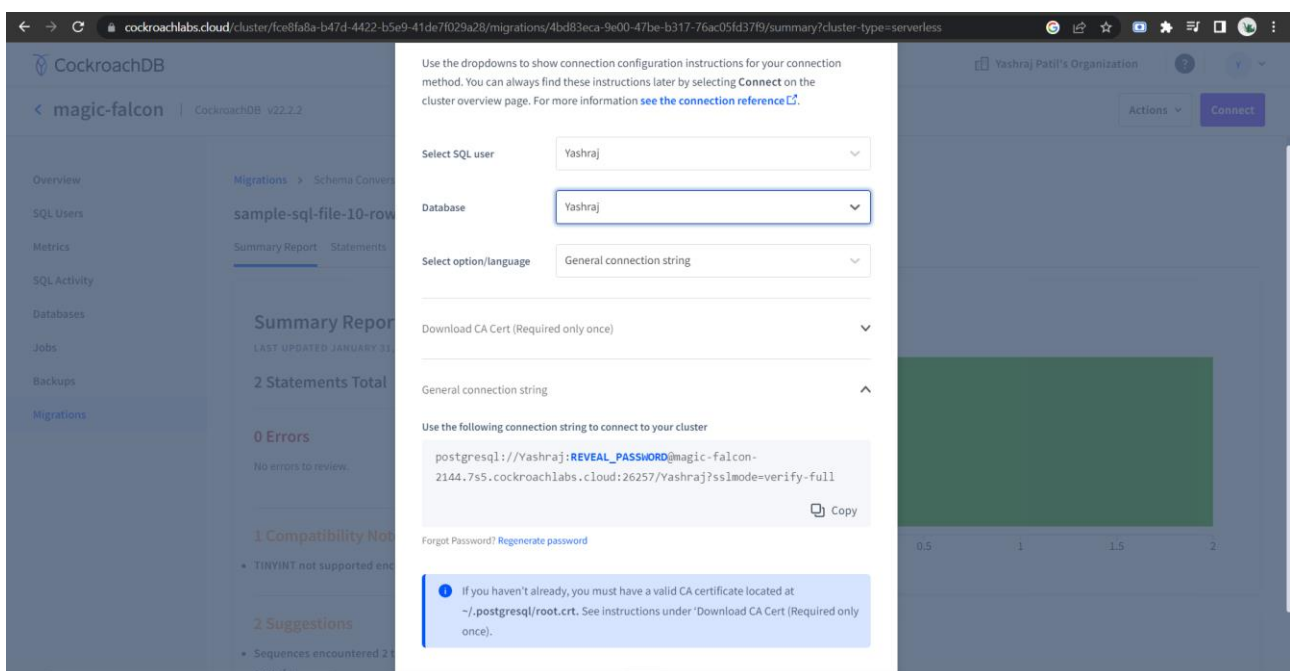
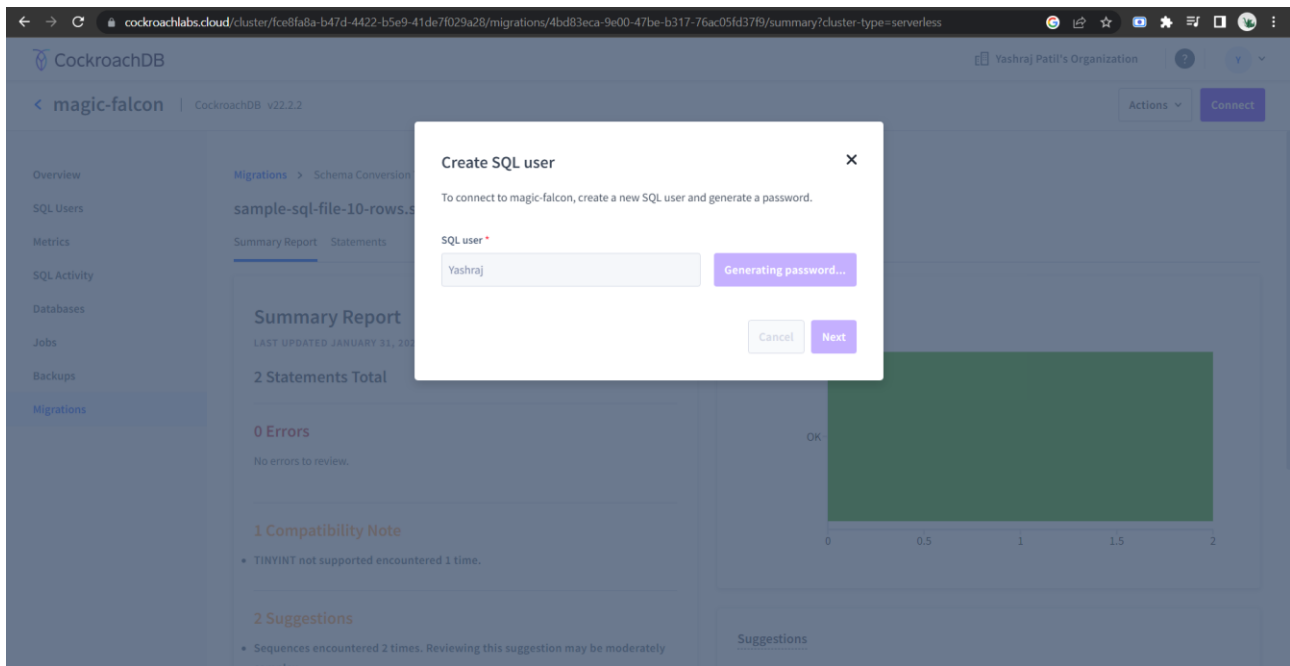
Sequences encountered 2 times. Reviewing this suggestion may be moderately complex.

Statement Status

OK

0 0.5 1 1.5 2

Suggestions



## 6. How does the Exam software work?

Popularly used by recruiters and educational institutions, exam software is used for setting up online exams. The best online examination software helps with the following procedures:

### Students' Registration

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

### Test Paper Creation



Yashraj Patil  
2020BTECS00069

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.

## **Software Engineering Tools Lab**

### **Assignment No-2**

#### **Module 2- Software Development Frameworks**

**PRN : 2020BTECS00079**

**Batch : T7**

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### **Eclipse:**

- 1) Original author : IBM
- 2) Developers : Eclipse Foundation
- 3) Initial release : November 2001
- 4) Stable release : 2022-06 (Eclipse 4.17)
- 5) Preview release : 26 June 2006
- 6) Repository (with cloud support ) : <https://www.eclipse.org/downloads/>
- 7) Written in (Languages) : Java and C
- 8) Operating System support : Windows, macOS, Linux
- 9) Platform ,portability : Cross-platform
- 10)Available in (Total languages) : 44 languages
- 11)List of languages supported : C, C++, C#, Clojure, COBOL, D, Erlang, Fortran, Groovy, Haskell, JavaScript, Julia, Lasso, Lua, NATURAL, Perl, PHP
- 12)Type (Programming tool, integrated development environment etc.)
- 13)Website : <https://www.eclipse.org/>
- 14)Features : Coding Shortcuts , Autocorrection , Refactoring , Diffing Files , Organizing Imports, Formatting Source Code
- 15)Size (in MB, GB etc.) : 182 MB
- 16)Privacy and Security : <https://www.eclipse.org/legal/privacy.php>
- 17)Type of software (Open source/License) : Open Source
- 18)If License- Provide details.
- 19)Latest version : Eclipse 4.23 (2022-03)
- 20)Cloud support (Yes/No) : No
- 21)Applicability : integrated development environment
- 22)Drawbacks (if any):

## **Android SD:**

- 1) Original author: Google
- 2) Developers: Google, Open Handset Alliance, and Android Community
- 3) Initial release: November 5, 2007
- 4) Stable release: 30.0.4 (January 2021)
- 5) Preview release: Not applicable
- 6) Repository (with cloud support): GitHub (with support for Google Cloud and Amazon Web Services)
- 7) Written in (Languages): Java, C++, and XML
- 8) Operating System support: Windows, macOS, and Linux
- 9) Platform, portability: Cross-platform
- 10) Available in (Total languages): varies based on API level, supports multiple languages
- 11) List of languages supported: Java, Kotlin, C++, and XML
- 12) Type: Integrated Development Environment (IDE), SDK
- 13) Website: [developer.android.com](https://developer.android.com)
- 14) Features: Emulator, Debugging tools, Libraries, APIs, Sample Code, and Documentation
- 15) Size (in MB, GB etc.): varies based on installation, typically around 4GB
- 16) Privacy and Security: Google releases regular security updates, user must follow best practices for secure development
- 17) Type of software (Open source/License): Open-source, under the Apache License 2.0
- 18) If License- Provide details: Apache License 2.0 is a permissive free software license that allows for reuse within proprietary software provided all copies of the licensed software include a copy of the Apache License terms and the copyright notice.
- 19) Latest version: 30.0.4
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: Mobile Application Development for the Android Operating System
- 22) Drawbacks (if any): Learning curve for new developers, fragmentation across different Android versions and devices, and slow release cycle for new features.

## **Node.js:**

- 1) Original author: Ryan Dahl
- 2) Developers: Node.js Foundation, various individual contributors
- 3) Initial release: May 27, 2009
- 4) Stable release: 15.9.0 (January 2021)
- 5) Preview release: Not applicable
- 6) Repository (with cloud support): GitHub (with support for multiple cloud platforms)
- 7) Written in (Languages): JavaScript and C++
- 8) Operating System support: Windows, macOS, Linux, Unix, and more
- 9) Platform, portability: Cross-platform
- 10) Available in (Total languages): JavaScript
- 11) List of languages supported: JavaScript
- 12) Type: Server-side JavaScript Environment, Application Server, Backend Technology
- 13) Website: nodejs.org
- 14) Features: Event-driven, Asynchronous I/O, Lightweight, Fast, Scalable, and Single-threaded
- 15) Size (in MB, GB etc.): Typically around 40 MB
- 16) Privacy and Security: Regular security updates, user must follow best practices for secure development
- 17) Type of software (Open source/License): Open-source, under the MIT License
- 18) If License- Provide details: The MIT License is a permissive free software license that allows for reuse within proprietary software provided all copies of the licensed software include a copy of the MIT License terms and the copyright notice.
- 19) Latest version: 15.9.0
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: Server-side Web Application Development, Network Applications, IoT, and Backend Services
- 22) Drawbacks (if only): Steep learning curve for beginners, not suitable for CPU-bound tasks, and callback hell (lack of error handling).

## **DotNet:**

- 1) Original author: Microsoft Corporation
- 2) Developers: Microsoft, .NET Community
- 3) Initial release: February 13, 2002
- 4) Stable release: 6.0 (November 10, 2020)
- 5) Preview release: Not applicable
- 6) Repository (with cloud support): GitHub (with support for Microsoft Azure cloud platform)
- 7) Written in (Languages): C#, F#, Visual Basic .NET (VB.NET), and others
- 8) Operating System support: Windows, macOS, and Linux (through .NET Core)
- 9) Platform, portability: Cross-platform (with .NET Core)
- 10) Available in (Total languages): Multiple
- 11) List of languages supported: C#, F#, Visual Basic .NET (VB.NET), and others
- 12) Type: Software Framework, Development Platform
- 13) Website: [dotnet.microsoft.com](https://dotnet.microsoft.com)
- 14) Features: Object-Oriented Programming, Garbage Collection, Type Safety, Portability, Interoperability, Standard Library, and others
- 15) Size (in MB, GB etc.): Depends on the installation type, typically around 500 MB to 1 GB
- 16) Privacy and Security: Regular security updates, Microsoft follows strict security practices, user must follow best practices for secure development
- 17) Type of software (Open source/License): Open-source, under the MIT and Apache 2.0 licenses
- 18) If License- Provide details: The .NET platform is open-sourced under the MIT and Apache 2.0 licenses, which are permissive free software licenses that allow for reuse within proprietary software provided all copies of the licensed software include a copy of the license terms and the copyright notice.
- 19) Latest version: 6.0
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: Windows desktop applications, Windows store apps, Web applications, Cloud services, Games, Mobile apps (through Xamarin), and others
- 22) Drawbacks (if any): Steep learning curve for beginners, not as widely adopted as some other software platforms, legacy code and compatibility issues with newer versions

## **Ruby on Rails:**

- 1) Original author: David Heinemeier Hansson
- 2) Developers: Rails Core Team, Contributors, and Community
- 3) Initial release: December 13, 2005
- 4) Stable release: 6.1.3 (January 25, 2021)
- 5) Preview release: 6.2.0.rc2 (January 27, 2021)
- 6) Repository (with cloud support): GitHub (with Heroku, AWS, and Google Cloud support)
- 7) Written in (Languages): Ruby
- 8) Operating System support: Windows, macOS, and Linux
- 9) Platform, portability: Cross-platform
- 10) Available in (Total languages): 1 (Ruby)
- 11) List of languages supported: Ruby
- 12) Type: Server-side web application framework
- 13) Website: [rubyonrails.org](https://rubyonrails.org)
- 14) Features: MVC pattern, ORM, Routing, Templating, Asset pipeline, and Middleware
- 15) Size (in MB, GB etc.): varies based on application size, framework is lightweight
- 16) Privacy and Security: security patches and updates are regularly released, user should follow best practices for secure development
- 17) Type of software (Open source/License): Open-source, under the MIT License
- 18) If License- Provide details: MIT License is a permissive free software license that allows for reuse within proprietary software provided all copies of the licensed software include a copy of the MIT License terms and the copyright notice.
- 19) Latest version: 6.1.3
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: Web development, Content Management Systems, E-commerce Applications, etc.
- 22) Drawbacks (if any): Performance issues with large and complex applications, Steep learning curve for beginners, and some features may be over-complicated for simple projects.

## **Anaconda:**

- 1) Original author: Continuum Analytics, Inc.
- 2) Developers: Anaconda, Inc.
- 3) Initial release: 2012
- 4) Stable release: Latest version
- 5) Preview release: N/A
- 6) Repository (with cloud support): <https://anaconda.org/anaconda/repo>,  
Anaconda Cloud
- 7) Written in (Languages): Python, R
- 8) Operating System support: Windows, macOS, Linux
- 9) Platform, portability: Cross-platform
- 10) Available in (Total languages): N/A
- 11) List of languages supported: Python, R
- 12) Type (Programming tool, integrated development environment etc.):  
Distribution of Python and R for data science and machine learning
- 13) Website: <https://www.anaconda.com/>
- 14) Features: Package management and deployment, integrated development  
environment (Spyder), Jupyter notebooks, hundreds of pre-installed packages  
for data science and machine learning
- 15) Size (in MB, GB etc.): Depending on the installation options, anywhere from a few  
hundred MBs to a few GBs
- 16) Privacy and Security: Anaconda is committed to protecting user privacy and  
maintaining the security of the platform and its users' data.
- 17) Type of software (Open source/License): Open-source with a commercial license  
option
- 18) If License- Provide details: Anaconda is available under the open-source BSD  
license, but also offers a commercial license for businesses and organizations.
- 19) Latest version: N/A (check the official website for the latest version)
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: For data science, machine learning, and scientific computing.
- 22) Drawbacks (if any): Some users may find the size of the distribution to be large,  
and may have difficulty configuring it for specific use cases

## **Google colab:**

- 1) Original author: Google
- 2) Developers: Google
- 3) Initial release: April 13, 2012
- 4) Stable release: Ongoing
- 5) Preview release: None
- 6) Repository: Google
- 7) Written in (Languages): Python, JavaScript, etc.
- 8) Operating System support: Web-based, accessible from any device with an internet connection
- 9) Platform, portability: Cloud-based, accessible from any device with an internet connection
- 10) Available in (Total languages): 1 (English)
- 11) List of languages supported: English
- 12) Type: Cloud-based integrated development environment
- 13) Website: <https://colab.research.google.com/>
- 14) Features: Notebook interface, code execution, data analysis, visualization, collaboration, and integration with Google Drive and Google Cloud Storage
- 15) Size (in MB, GB etc.): No required installation, uses cloud storage for data and files
- 16) Privacy and Security: Google's privacy and security policies apply
- 17) Type of software (Open source/License): Closed source, proprietary software
- 18) If License- Provide details: N/A
- 19) Latest version: Ongoing, regularly updated
- 20) Cloud support (Yes/No): Yes
- 21) Applicability: Data analysis, machine learning, research and development, collaboration, education, etc.
- 22) Drawbacks (if any): Limited local storage, dependent on an internet connection, limited support for certain packages, limited control over the hardware.



## **Django:**

- 1) Original author: Adrian Holovaty and Simon Willison
- 2) Developers: Django Software Foundation
- 3) Initial release: July 2005
- 4) Stable release: 3.2.1 (2022-12-06)
- 5) Preview release: N/A
- 6) Repository: GitHub (django/django) with cloud support (AWS, Heroku, etc.)
- 7) Written in: Python
- 8) Operating System support: Cross-platform
- 9) Platform: Web application development
- 10) Available in: English
- 11) List of languages supported: English
- 12) Type: Web framework, High-level Python web framework
- 13) Website: <https://www.djangoproject.com/>
- 14) Features: Dynamic administrative interface, ORM, MVC architecture, URL routing, Templates, Security, Scalability, and Extendibility
- 15) Size: MB (depends on the installation size)
- 16) Privacy and Security: Django provides protection against common web attacks, protection for sensitive information like passwords, and several other security features.
- 17) Type of software: Open source
- 18) If License- Provide details: BSD 3-Clause License
- 19) Latest version: 3.2.1 (2022-12-06)
- 20) Cloud support: Yes
- 21) Applicability: Django can be used for building web applications, CMS, e-commerce sites, and more.
- 22) Drawbacks (if any): Steep learning curve for beginners, heavy server requirements, more time-consuming than some other web frameworks, large applications may slow down.

## Vue.js:

- 1) Original author: Evan You
- 2) Developers: Evan You, the Vue.js core team and community of contributors
- 3) Initial release: February 2014
- 4) Stable release: v3.7.0 (January 2022)
- 5) Preview release: N/A
- 6) Repository (with cloud support ): <https://github.com/vuejs/vue>
- 7) Written in (Languages): JavaScript
- 8) Operating System support: Cross-platform
- 9) Platform, portability: Web platform
- 10) Available in (Total languages): N/A
- 11) List of languages supported: JavaScript
- 12) Type (Programming tool, integrated development environment etc.):  
JavaScript framework for building user interfaces
- 13) Website: <https://vuejs.org/>
- 14) Features: Reactive and composable components, reactivity system, virtual DOM, template-based syntax, directives, event handling, and more
- 15) Size (in MB, GB etc.): Approximately 20-30KB minified and gzipped
- 16) Privacy and Security: No information available.
- 17) Type of software (Open source/License): Open source, MIT license
- 18) If License- Provide details: The MIT License is a permissive free software license originating at the Massachusetts Institute of Technology (MIT). It allows the reuse of software released under the license in source and binary forms, without needing to provide source code to the users.
- 19) Latest version: v3.7.0
- 20) Cloud support (Yes/No): N/A
- 21) Applicability: Developing dynamic web applications and building user interfaces.
- 22) Drawbacks (if any ): Steep learning curve for new developers, limitations in customizing advanced functionality, requires a separate library for state management.

## GitHub:

- 1) Original author: Tom Preston-Werner, Chris Wanstrath, and PJ Hyett
- 2) Developers: Microsoft
- 3) Initial release: February 2008
- 4) Stable release: Continuous
- 5) Preview release: N/A
- 6) Repository (with cloud support): GitHub, GitHub Enterprise
- 7) Written in (Languages): Ruby, JavaScript, Elixir
- 8) Operating System support: Web-based, macOS, Windows, Linux
- 9) Platform ,portability: Cross-platform
- 10)Available in (Total languages): N/A
- 11)List of languages supported: Over 100 programming languages
- 12)Type (Programming tool, integrated development environment etc.): Web-based hosting service for version control and collaboration using Git.
- 13)Website: <https://github.com/>
- 14)Features: Code review, Project management, Documentation, Issue tracking, Continuous integration and deployment, etc.
- 15)Size (in MB, GB etc.): N/A
- 16)Privacy and Security: Encryption, 2-factor authentication, auditing, and other security features.
- 17)Type of software (Open source/License): Proprietary
- 18)If License- Provide details: N/A
- 19)Latest version: Continuous
- 20)Cloud support (Yes/No): Yes
- 21)Applicability: Software development, version control, and collaboration
- 22)Drawbacks (if any ): Limited features in the free version, private repositories require a paid subscription.

## **React:**

- 1) Original author: Jordan Walke, a software engineer at Facebook
- 2) Developers: Facebook, Instagram
- 3) Initial release: May 2013
- 4) Stable release: 17.0.2 (Jan 2021)
- 5) Preview release: Not applicable
- 6) Repository: <https://github.com/facebook/react> (with cloud support through various platforms including Heroku, AWS, and Firebase)
- 7) Written in: JavaScript
- 8) Operating System support: Cross-platform
- 9) Platform, portability: Web, Native (React Native)
- 10) Available in: 1 (JavaScript)
- 11) List of languages supported: JavaScript
- 12) Type: JavaScript Library for building user interfaces
- 13) Website: <https://reactjs.org/>
- 14) Features: Virtual DOM, Reactive and composable components, Server-side rendering, JSX syntax
- 15) Size: Minified version is around 6 KB
- 16) Privacy and Security: Follows industry standard security practices, developers are responsible for ensuring secure usage
- 17) Type of software: Open source, Licensed under MIT License
- 18) If License: MIT License, a permissive open-source license that allows for modification and distribution of the software
- 19) Latest version: 17.0.2
- 20) Cloud support: Yes (through various platforms including Heroku, AWS, and Firebase)
- 21) Applicability: Building complex and large-scale web applications, cross-platform mobile application development (React Native)
- 22) Drawbacks: Steep learning curve for beginners, Higher complexity in larger projects, Need to regularly keep up with updates.

**Implement linear regression problem using Google colab (Perform preprocessing, training and testing) Node.js , Android SDK , Dot Net, Ruby on Rails, Anaconda,Eclipse Use any of one following appropriate dataset.**

Dataset 3 <https://archive.ics.uci.edu/ml/datasets/Appliances+energy+prediction>

```
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split

# Load the dataset
# Dataset 3-
https://archive.ics.uci.edu/ml/datasets/Appliances+energy+prediction
# Appliances energy prediction Data Set
data = pd.read_csv('energydata_complete.csv')
# Clean the data
data.dropna(inplace=True)

# Split the data into training and testing sets
x = data.iloc[:, 1].values
y = data.iloc[:, 2].values
x = x.reshape(-1,1)
# X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
random_state=0)

X_train, X_test, y_train, y_test = train_test_split(x, y, test_size=0.2,
random_state=0)

from sklearn.linear_model import LinearRegression
# Train the linear regression model
regressor = LinearRegression()
regressor.fit(X_train, y_train)
```

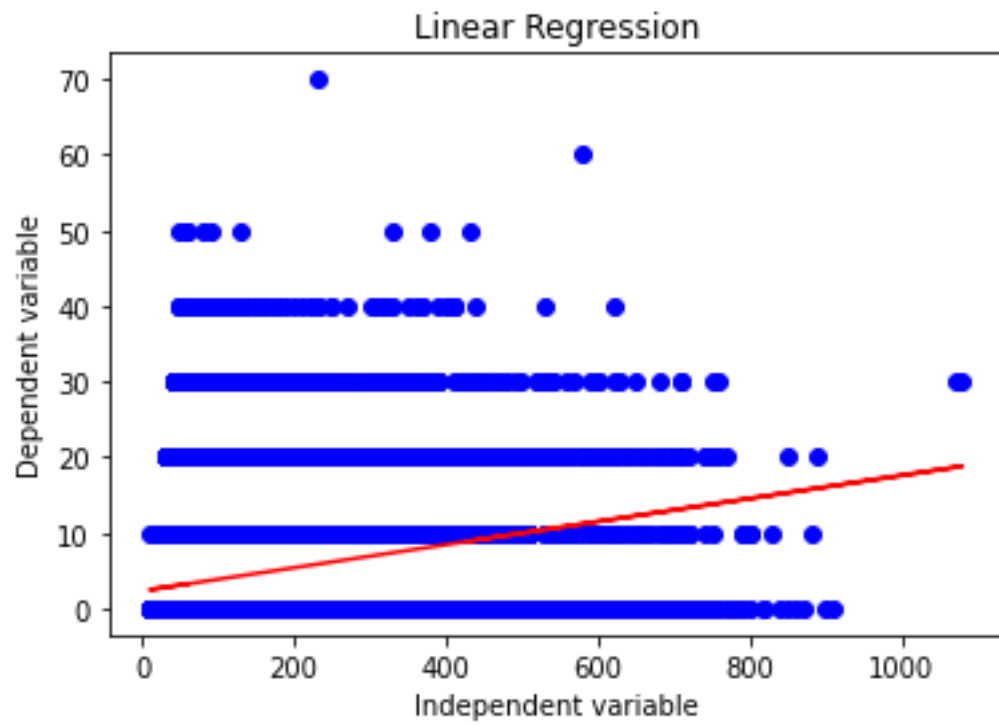
```
from sklearn.metrics import mean_squared_error, r2_score
# Predict the target values for the testing data
y_pred = regressor.predict(X_test)
# Evaluate the model performance
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)
print('Mean Squared Error:', mse)
print('R-Squared Score:', r2)
```

```
!pip install matplotlib
```

```
import matplotlib.pyplot as plt
import numpy as np
from sklearn.linear_model import LinearRegression
```

```
# Fitting the model
reg = LinearRegression().fit(x, y)

# Independent variable : Appliances
# Dependent variable : Light
# Plotting the data and regression line
plt.scatter(x, y, color='blue')
plt.plot(x, reg.predict(x), color='red')
plt.xlabel('Independent variable')
plt.ylabel('Dependent variable')
plt.title('Linear Regression')
plt.show()
```



Yashraj Patil  
2020BTECS00069

## Software Engineering Tools Lab

### Assignment No-3

#### Module 3- Study of Project Management Tool (Jira)

PRN : 2020BTECS00069

Name : Yashraj Patil

#### 1) Create a project (give name of your project) in Jira, use template as Scrum and add your team members into this project

To create a project in Jira, you will need to access the Jira platform and log in to your account. From there, you can click on the "Create project" button and choose the Scrum template. You can then give your project a name, add a description if desired, and invite your team members to join the project.

You are signed in as 2020btecs00069

Projects - Jira

JIRA Tutorial in Hindi (Project, E)

gdocs - Google Search

yashrajpatil056.atlassian.net/jira/settings/projects/manage

← Back to project types

### Add project details

You can change these details anytime in your project settings.

Name \*

Mega Project

Access Anyone with access to yashrajpatil056 can access and administer this project. Upgrade your plan to customize project permissions.

Key \*

MEGA

☐ Connect repositories, documents, and more  
Sync your team's work from other tools with this project for better visibility, access, and automation.

Template

Change template

Scrum  
Sprint toward your project goals with a board, backlog, and roadmap.

Type

Change type

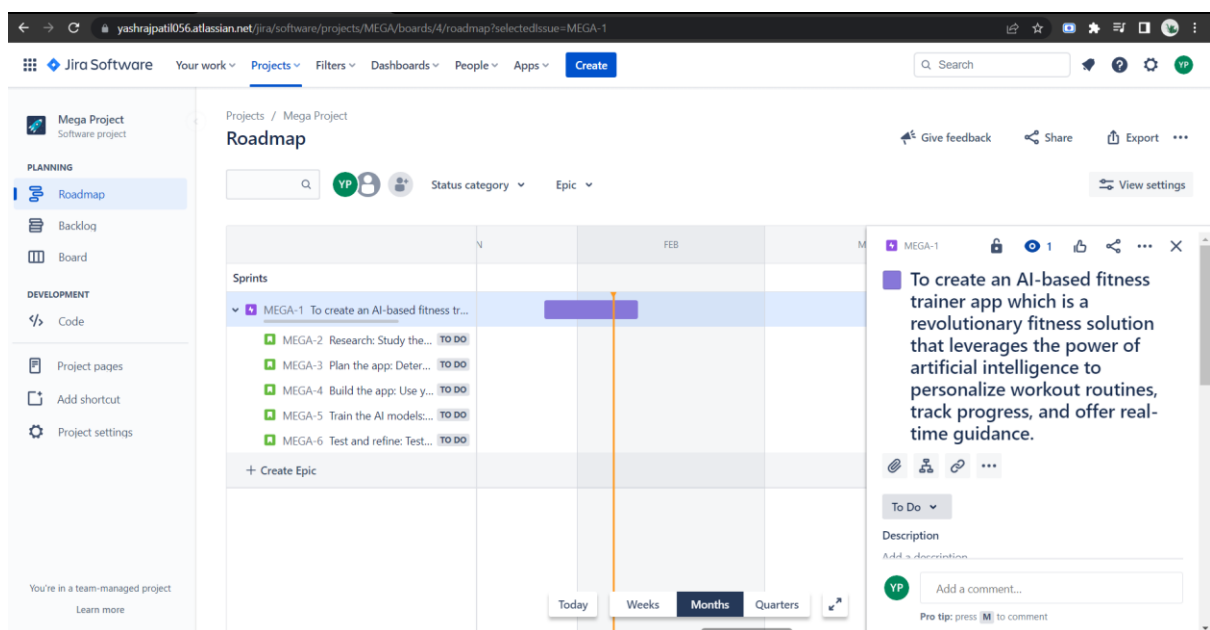
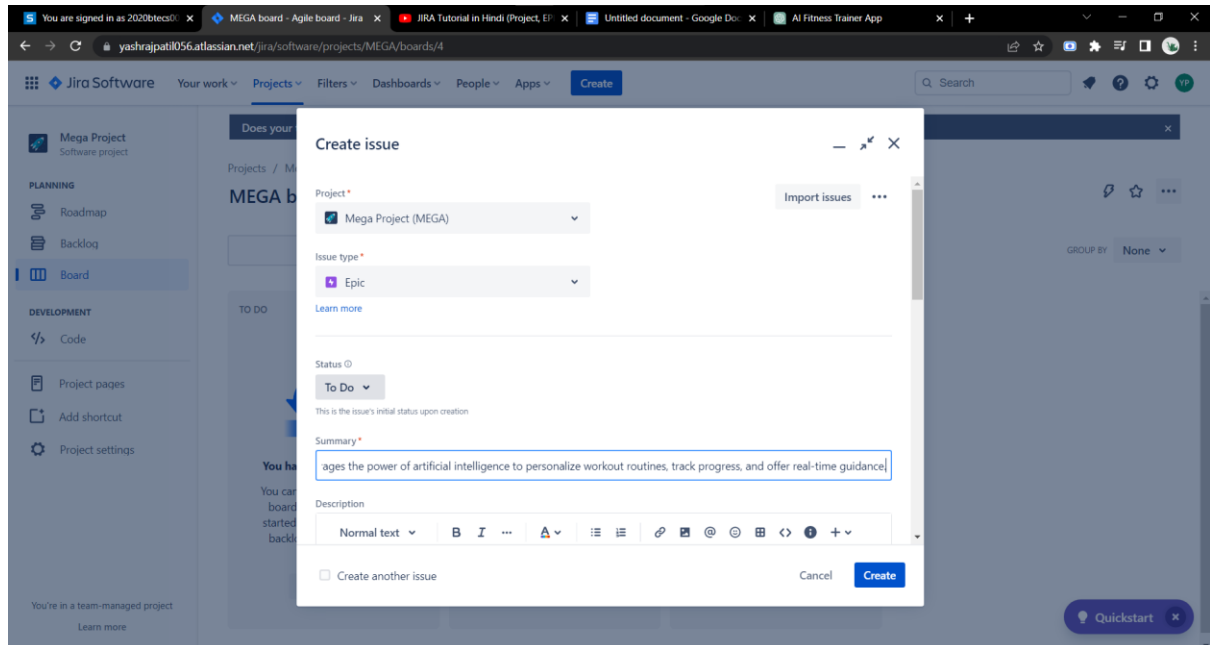
Team-managed  
Control your own working processes and practices in a self-contained space.

Cancel Create project



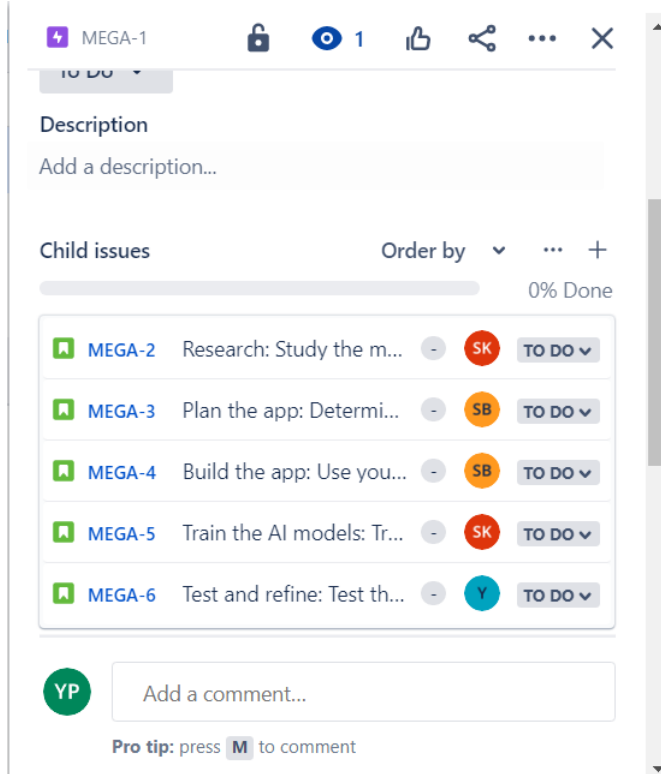
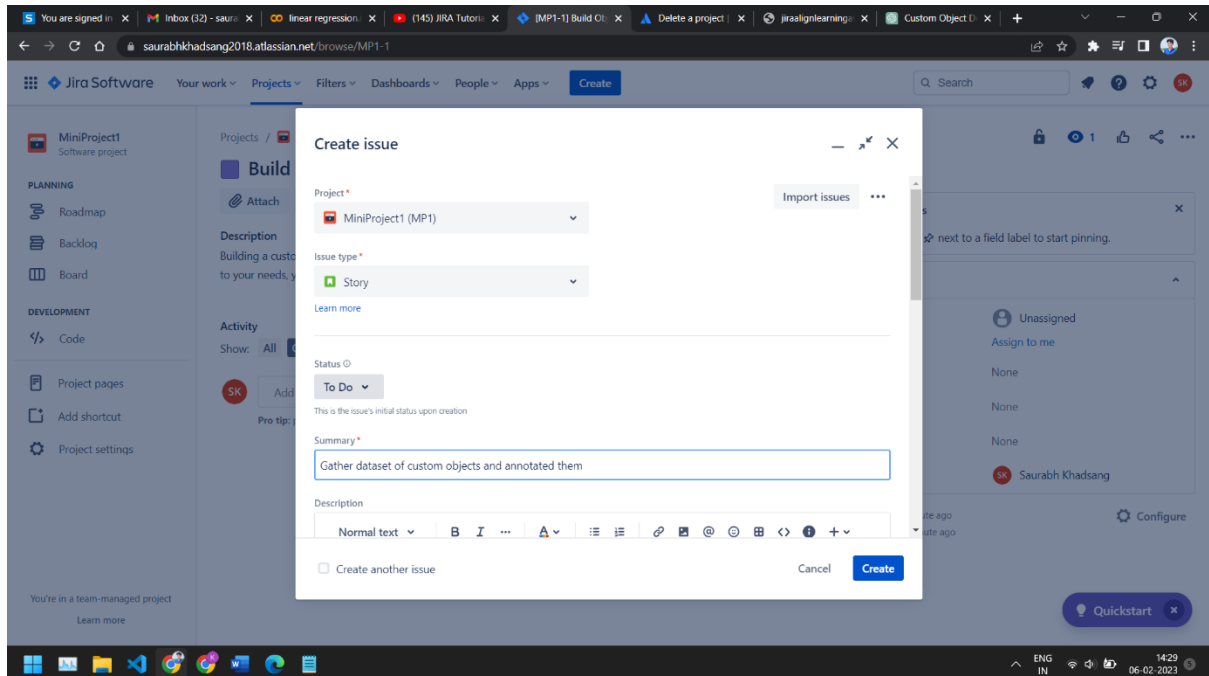
## 2) Create an Epic into above project (main requirement of your project, e.g Creating a web application for student result generation).

To create an Epic, you can click on the "Epics" panel in your project and select "Create Epic." Enter the main requirement of your project in the title field and add a description if needed.



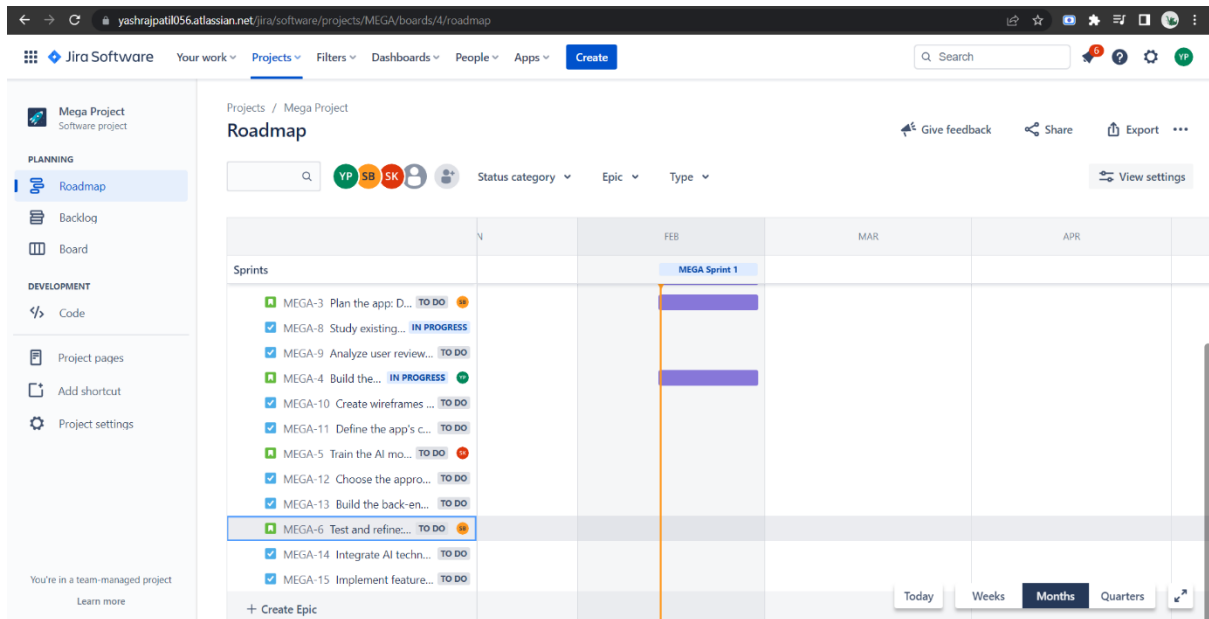
### 3) Create at least 5 user stories with respect to above epic for your project.

To create user stories, click on the "Issues" panel and select "Create issue." Choose the "Story" issue type and enter a brief description of the user story in the title field. Repeat this step for at least 5 user stories.



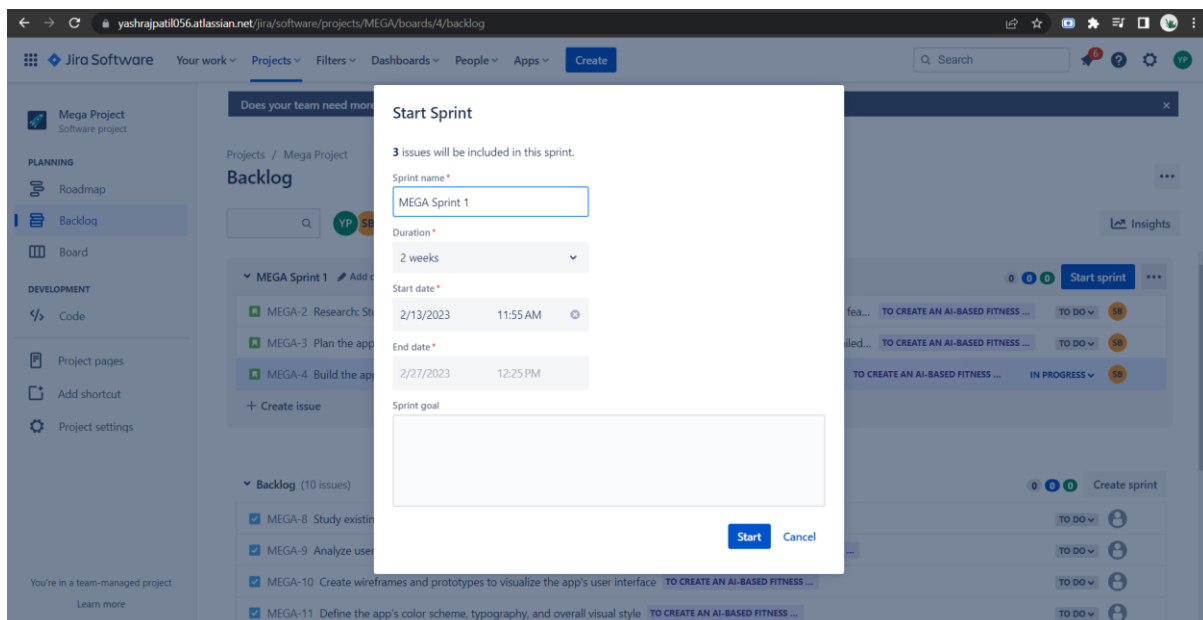
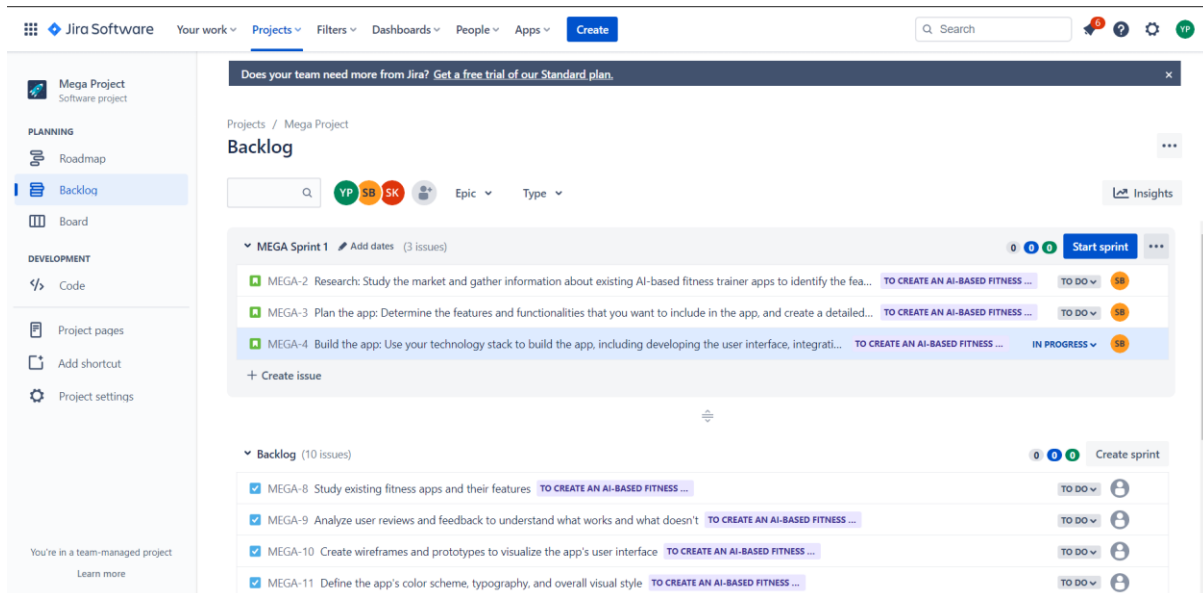
#### 4) Create at least 2 subtasks for every user story. Assign user stories to your team members.

To create subtasks for each user story, click on the user story you want to add a subtask to, select "Create task," and enter a brief description of the subtask in the title field. Repeat this step for each user story. Assign each user story to a team member by clicking on the "Assignee" field and selecting the appropriate team member.



## 5) Create sprints for every use stories and prioritize them according to your tasks. Assign time period for every user story.

To create sprints, you can click on the "Backlog" panel and select "Create sprint." Enter a name for the sprint, select the start and end dates, and choose the user stories you want to include in the sprint. Prioritize the user stories by dragging and dropping them in the order you desire. Assign a time period for each user story by clicking on the "Estimate" field and entering the estimated time.



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← → ↺ yashrajpatil056@lassian.net/jira/software/projects/MEGA/boards/4

Jira Software Your work ▾ Projects ▾ Filters ▾ Dashboards ▾ People ▾ Apps ▾ Create

Search

Mega Project  
Software project

Projects / Mega Project

MEGA Sprint 1

10 days remaining Complete sprint ...

ROADMAP BACKLOG BOARD

PLANNING

Roadmap

Backlog

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

TO DO 2 ISSUES

Research: Study the market and gather information about existing AI-based fitness trainer apps to identify the features and functionalities that are in demand.

TO CREATE AN AI-BASED FITNESS ...

MEGA-2

Plan the app: Determine the features and functionalities that you want to include in the app, and create a detailed plan for the development process.

TO CREATE AN AI-BASED FITNESS ...

MEGA-3

IN PROGRESS 1 ISSUE

Build the app: Use your technology stack to build the app, including developing the user interface, integrating the AI algorithms, and testing the app to ensure that it works as expected.

TO CREATE AN AI-BASED FITNESS ...

MEGA-4

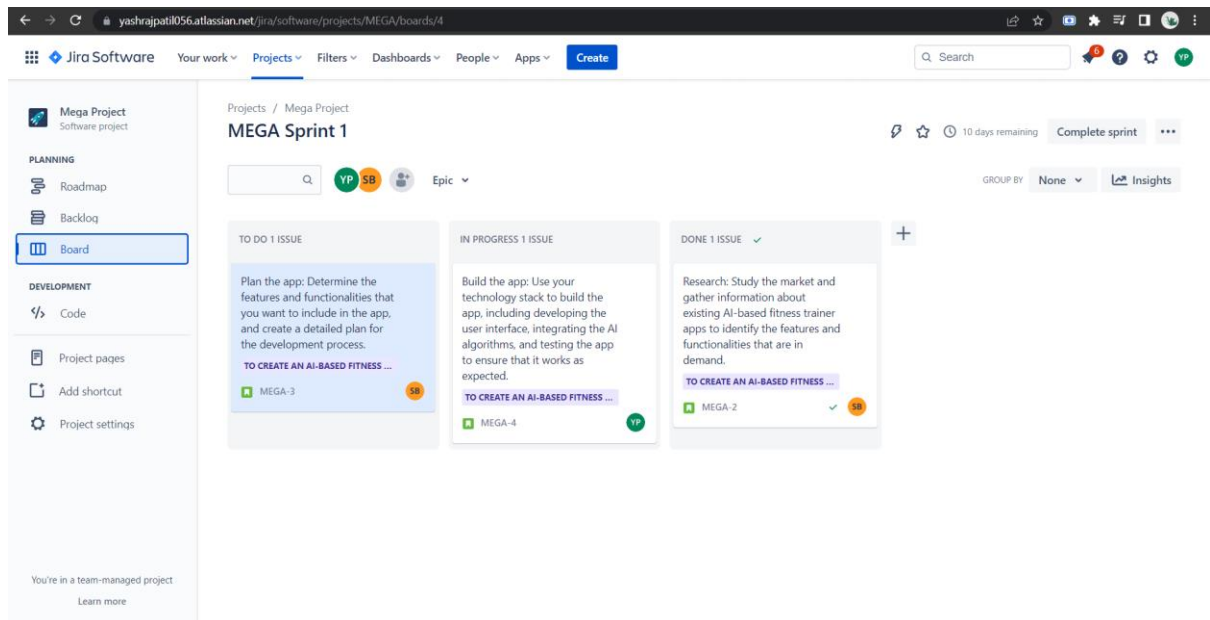
DONE ✓

You're in a team-managed project. [Learn more](#)

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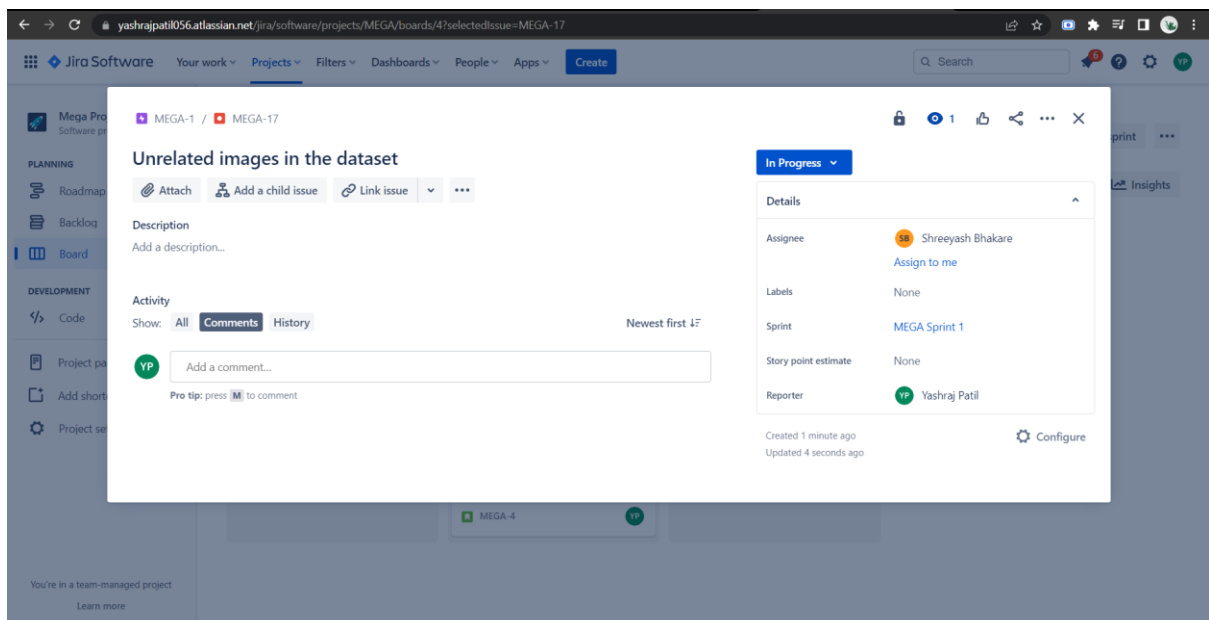
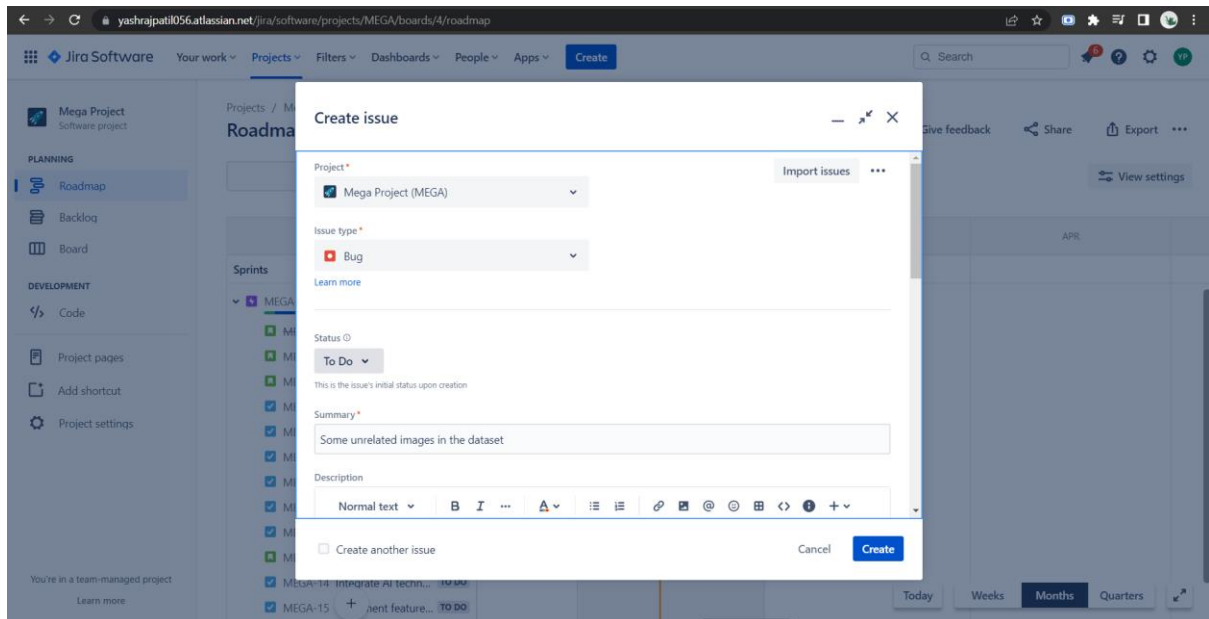
## 6) Update the status of some user stories as To Do, In Progress or Completed according to sprints (add appropriate comments).

To update the status of user stories, you can click on the user story and select "Edit." Change the status to "To Do," "In Progress," or "Completed" and add appropriate comments in the "Comment" field.



## 7) Create a bug/issue for respective user story and epic and assign to respective member.

To create a bug or issue, click on the "Issues" panel and select "Create issue." Choose the appropriate issue type (e.g. "Bug") and enter a brief description of the issue in the title field. Assign the issue to a team member by clicking on the "Assignee" field and selecting the appropriate team member.



## 8) Display reports (Burnup chart, Burndown chart) w.r.t your created project.

To display reports, you can access the "Project pages" panel and choose the report you want to view. The report will display information and data related to your project, including sprint progress, user story status, and more.

