Software Engineering Tools Lab
Assignment No-2

(Module 2- Software Development Frameworks)

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1. List of Frameworks/IDEs/Software

- Eclipse
- Android SDK
- Node.Js
- DotNet
- Ruby on Rails
- Anaconda
- Google Colab
- Django
- Vue.js
- GitHub
- React

For every Framework/IDEs/Software given above provide the answers for the below question
1. Original author 2. Developers 3. Initial release
4. Stable release 5. Preview release 6. Repository (with cloud support) 7. Written in (Languages) 8. Operating System supports 9. Platform, portability 10. Available in (Total languages) 11. List of languages supported 12. Type (Programming tool, integrated development environment, etc.)
13. Website 14. Features 15. Size (in MB, GB, etc.)
16. Privacy and Security 17. Type of software (Open source/License) 18. If License- Provide details. 19. Latest version
20. Cloud support (Yes/No) 21. Applicability
22. Drawbacks (if any)

1. Eclipse

- Original author: Eclipse was originally developed by IBM.
- Developers: Eclipse is now developed by the Eclipse Foundation, a non-profit organization.
- Initial release: November 7, 2001
- Stable release: Eclipse 4.26, released on June 22, 2021
- Preview release: 4.27 (2023-03 release)
- Repository (with cloud support): https://git.eclipse.org/c/
- Written in: Java and C
- Operating System Support: Eclipse runs on Windows, macOS, and Linux.
- Platform, portability: Java SE, Standard Widget Toolkit, x86-64
- Available in (Total languages): 44 languages
- List of languages supported: Eclipse supports Java, C/C++, Python, and many other programming languages

- Type: Integrated Development Environment (IDE)
- Website: https://www.eclipse.org/
- Features: Eclipse has a large number of features, including a built-in code editor, a debugger, a Git version control system, and support for plugins and extensions.
- Size: 182MB
- Privacy and Security: Eclipse has a strong commitment to privacy and security, and employs various security measures to protect users' data and information.
- Type of software: Open Source
- If License: Eclipse is released under the Eclipse Public License (EPL).
- Latest version: Eclipse 4.23
- Cloud support: Yes
- Applicability: Eclipse is used primarily for Java development, but can be used for other programming languages as well.
- Drawbacks (if any): Some users have reported that Eclipse can be slow and resource-intensive and that its interface can be confusing to navigate. However, these drawbacks can be addressed with plugins and customization.

2. Android SDK:

- Original author: Open Handset Alliance
- Developers: Open Handset Alliance, now maintained by Google
- Initial release: October 2009 4. Stable release: Android 11 (26.1.1) (September 8, 2020)
- Preview release: Android 12 (February 2021)
- Repository (with cloud support): https://github.com/AndroidSDKSources
- Written in: Java
- Operating System support: Windows, macOS, Linux
- Platform, portability: Android
- Available in (Total languages): Multiple, based on device language settings
- List of languages supported: English, Spanish, French, German, Italian, Japanese, Korean, Russian, Chinese, etc.
- Type: Software development kit (SDK)
- Website: https://developer.android.com/
- Features: Android SDK includes tools for developing, testing, and debugging apps, including an emulator, libraries, and sample code.
- Size (in MB, GB etc.): Varies based on installation, typically a few GBs
- Privacy and Security: Google provides security updates and works with device manufacturers to address vulnerabilities, but individual app developers are also responsible for ensuring the security of their apps.
- Type of software: Open-source software, licensed under the Apache License 2.0
- If License: Apache License 2.0
- Latest version: Android 11 SDK
- Cloud support: No
- Applicability: For developing Android mobile apps
- Drawbacks (if any): SDK size can be large, and may require a relatively high-end computer for development and testing. Some developers may also prefer other development environments or platforms.

3. **Node.js**
    - Original author: Ryan Dahl
    - Developers: Node.js Foundation
    - Initial release: May 27, 2009
    - Stable release: v19.4.0 (January 6, 2023)
    - Preview release: v18.14.0 (2023-02-01)
    - Repository (with cloud support): https://github.com/nodejs/node (with support for GitHub and other cloud platforms)
    - Written in: C, C++, JavaScript
    - Operating System support: Windows, macOS, Linux, and Unix
    - Platform, portability: Cross-platform
    - Available in: Total 27 languages
    - List of languages supported: English, Spanish, Chinese, French, German, Italian, Portuguese, Russian, Japanese, Korean, and more.
    - Type: Server-side JavaScript runtime environment
    - Website: https://nodejs.org/
    - Features: Asynchronous I/O, npm package manager, event-driven programming, support for multiple programming paradigms, single-threaded with ability to handle multiple connections.
    - Size: Varies based on the installation method and platform, typically around 20-50 MB
    - Privacy and Security: Node.js follows security best practices and releases security updates as needed. The open-source nature of Node.js also allows for community involvement in detecting and addressing potential security issues.
    - Type of software: Open-source software
    - If License: Node.js is licensed under the MIT License.
    - Latest version: v15.12.0 (2021-12-08)
    - Cloud support: Yes
    - Applicability: Node.js is used for developing server-side applications, command-line tools, and networking applications.
    - Drawbacks (if any): Node.js may not be the best choice for CPU-intensive tasks, and its single-threaded nature can lead to performance issues if not properly managed. Additionally, the sheer number of packages available through npm can make it difficult to determine the stability and security of certain packages.

4. **Net**
    - Original author: Microsoft Corporation
    - Developers: Microsoft Corporation & open-source community
    - Initial release: June 27, 2016
    - Stable release: .NET 7.0.2 (November 10, 2023)
    - Preview release: .NET 6.0 Preview 6 (January 10, 2023)
    - Repository (with cloud support): GitHub (https://github.com/dotnet), Microsoft Azure
    - Written in: C# & C++
    - Operating System support: Windows, Linux, macOS & Android, IOS
    - Platform, portability: Cross-platform, runs on .NET runtime
    - Available in (Total languages): Supports multiple languages
    - List of languages supported: C#, F#, Visual Basic .NET (VB.NET), C++/CLI, Iron-Python, Iron-Ruby
    - Type: Software framework

- Website: https://dotnet.microsoft.com/
- Features: Object-oriented programming, Common Language Infrastructure (CLI), supports multiple programming languages, supports multiple platforms, easy integration with other Microsoft technologies, easy deployment and versioning, security, performance and reliability, provides a large library of pre-built code for common tasks.
- Size (in MB, GB etc.): Depends on the components installed and usage, the .NET runtime can take up hundreds of MB of disk space.
- Privacy and Security: Microsoft is committed to privacy and security for its users, and .NET has built-in security features to protect against potential threats. Type of software (Open source/License): Open-source under the MIT license, with some components under different licenses. 18. If License- Provide details: The .NET runtime is open-source under the MIT license, which allows for free use and distribution with conditions. Some components, such as ASP.NET, may be licensed under different terms. 19. Latest version: .NET 7.0 (January 10, 2023)
- Cloud support (Yes/No): Yes
- Applicability: .NET is used for building a wide range of applications, including desktop applications, web applications, cloud-based applications, mobile applications, gaming, and more.
- Drawbacks (if any): Some users have reported that .NET can have a steep learning curve, especially for those who are new to object-oriented programming. Additionally, some developers have reported that .NET can have performance issues compared to other frameworks, although these issues are being addressed in future releases.

5. Ruby on Rails

- Original author: David Heinemeier Hansson
- Developers: Ruby on Rails Core Team
- Initial release: August 2004
- Stable release: 7.0.4.2 (February 1, 2022)
- Preview release: N/A
- Repository: https://github.com/rails/rails
- Written in: Ruby Operating System support: Windows, macOS, Linux, FreeBSD
- Platform portability: Cross-platform
- Available in: N/A
- List of languages supported: Ruby
- Type: Web framework
- Website: https://rubyonrails.org/
- Features: MVC architecture, convention over configuration, built-in ORM, automatic code generation, and more.
- Size: 57.8MB
- Privacy and Security: N/A
- Type of software: Open source
- License: MIT License
- Latest version: 7.0.4.2 (January 24, 2023)
- Cloud support: Yes
- Applicability: Web development
- Drawbacks: Can be slower than other web frameworks in certain situations, can have a steep learning curve for beginners.

6. Anaconda

- Original author : Peter Wang and Travis Oliphant
- Developers: Continuum Analytics
- Initial release: 17 July 2012
- Stable release:18 October 2022
- Preview release:
- Repository: https://github.com/Anaconda-Platform
- Written in (Languages): Python, R.
- Operating System support: Windows, macOS, Linux
- Platform, portability: Cross-Platform
- Available in (Total languages):6 and more.
- List of languages supported: English, Spanish, French, German, Chinese, Japanese, and others. Type (Programming tool, integrated development environment , etc.): Anaconda is a distribution of software tools and libraries for data science and machine learning.
- Website: https://www.anaconda.com/
- Features: Package and environment management, Pre-installed libraries and tools, Jupyter Notebook, R language support, Cross-platform support, Cross-platform support.
- Size (in MB, GB, etc.):2000 MB
- Privacy and Security: Anaconda takes several steps to ensure the privacy and security of its users and their data: Secure data transmission, Encryption, Access control, Regular security updates, Bug bounty program.
- Type of software (Open source/License): Anaconda is a proprietary software with some open-source components.
- If License- Provide details: Anaconda is a proprietary software that is released under a proprietary license agreement from Anaconda, Inc.
- Latest version: Conda has been updated to v22.9.0. Anaconda Navigator has been updated to v2.3.1. This installer uses python-3.9
- Cloud support (Yes/No): Yes
- Applicability: Anaconda is a comprehensive software distribution for data science and machine learning that provides a wide range of tools and libraries for numerical computing, data analysis, and data visualization. It is applicable in a variety of settings, from individual data scientists and researchers to teams and large organizations, and is an ideal platform for developing and deploying data science and machine learning applications.
- Drawbacks (if any): Resource-intensive, Package compatibility, Complex, Slow performance because of more libraries.

7. Google Colab

- Original author : Google Collab was developed by Google Research.
- Developers: Google collab was developed by a team of engineers at Google Research.
- Initial release: November 2014.
- Stable release :
- Preview release
- Repository (with cloud support)
- Written in (Languages): Python, Javascript
- Operating System support: Windows, macOS, Linux, Chrome OS, and even mobile devices like smartphones and tablets.

- Platform, portability: Cross-Platform
- Available in (Total languages):10 languages.
- List of languages supported: English, Chinese, Spanish, French, German, Italian, Japanese, Korean, Portuguese, and Russian.
- Type (Programming tool, integrated development environment , etc.) : a web-based platform that combines the features of a programming tool and an integrated development environment (IDE).
- Website: https://colab.research.google.com/
- Features: Jupyter notebook-style interface, Jupyter notebook-style interface, Multiple programming languages, GPU and TPU support, Easy collaboration,
- Size (in MB, GB, etc .):
- Privacy and Security: Google Colab uses the security infrastructure of the Google Cloud Platform, which includes multiple security measures, such as encryption and access control.
- Type of software (Open source/License): proprietary service provided by Google
- If License- Provide details:
- Latest version: Google Colab uses Python 3.6. 9
- Cloud support (Yes/No): Yes
- Applicability: Google collab allows individuals to write and run code in a Jupyter notebook environment. Colab is especially useful for Data Science and Machine Learning, Research and Education, Prototyping and Model Development, Code Development and Testing.
- Drawbacks (if any): Limited Resources, Connection Issues, Time Limits, No Custom Libraries, No Persistent Storage.

8. Django

- Original author: Adrian Holovaty, Simon Willison
- Developers: Django Software Foundation
- Initial release: 21 July 2005
- Stable release: 1 February 2023
- Preview release:
- Repository (with cloud support): https://github.com/django/django
- Written in (Languages): Python
- Operating System support: Windows, macOS, Linux, Unix
- Platform, portability: Cross-Platform
- Available in (Total languages): Translated into more than 100 languages
- List of languages supported: English, Spanish
- Type (Programming tool, integrated development environment, etc.)
- Website: https://www.djangoproject.com/
- Features: A lightweight and standalone web server for development and testing, a template system that utilizes the concept of inheritance borrowed from object-oriented programming, a caching framework that can use any of several cache methods, support for middleware classes that can intervene at various stages of request processing and carry out custom functions.
- Size (in MB, GB, etc.): 8.9 MB
- Privacy and Security:
- Type of software (Open source/License): Web Framework 18. If License- Provide details: 3-clause BSD

- Latest version: version 3.2.
- Cloud support (Yes/No): Yes
- Applicability: Content management systems (CMS), E-commerce websites, Social media platforms, News websites, and Blogs.
- Drawbacks (if any): Django is Monolithic, Not for smaller projects, Steep learning curve, and Multiple request issues.

9. Github

- Original author: Tom Preston-Werner, Chris Wanstrath, and PJ Hyett
- Developers: GitHub Inc. and community contributors
- Initial release: April 10, 2008
- Stable release: 2.34.1 (as of February 14, 2023)
- Preview release: N/A
- Repository (with cloud support): Yes, GitHub provides cloud-based repository hosting and version control services.
- Written in (Languages): Ruby, JavaScript, HTML, CSS, and Shell
- Operating System support: Web-based, works on any operating system that supports a web browser
- Platform, portability: Web-based and supports any platform that can access a web browser.
- Available in (Total languages): GitHub website is available in more than 80 languages.
- List of languages supported: N/A (GitHub website supports more than 80 languages)
- Type (Programming tool, integrated development environment etc.): Version control system, code hosting platform, collaboration platform, and project management tool
- Website: https://github.com/
- Features: Code review, pull requests, issue tracking, wiki pages, project management, continuous integration and deployment, and many other collaboration features.
- Size (in MB, GB, etc.): The size varies depending on the size of the repositories hosted.
- Privacy and Security: GitHub implements several security measures, such as two-factor authentication, encrypted connections, and access control, to protect the repositories and user data.
- Type of software (Open source/License): GitHub is a proprietary software service.
- If License- Provide details: N/A
- Latest version: 2.34.1 (as of February 14, 2023)
- Cloud support (Yes/No): Yes, GitHub is a cloud-based service.
- Applicability: GitHub is used by individuals and teams to host and manage code repositories, collaborate on software projects, and contribute to open-source projects.
- Drawbacks: Some of the drawbacks of GitHub include the cost of private repository hosting, the learning curve for beginners, and the possibility of vendor lock-in.

10. Vue.js

- Original author: Evan You
- Developers: Vue.js core team and community contributors
- Initial release: February 2014
- Stable release: 3.2.31 (as of February 14, 2023)
- Preview release: N/A

- Repository (with cloud support): Yes, Vue.js has a GitHub repository and supports cloud-based hosting services such as Netlify and Heroku.
- Written in (Languages): JavaScript
- Operating System support: Cross-platform, works on any operating system that supports a web browser
- Platform, portability: Web-based and supports any platform that can access a web browser.
- Available in (Total languages): Vue.js documentation is available in several languages, including English, Spanish, French, Chinese, and Japanese.
- List of languages supported: Vue.js documentation is available in English, Spanish, French, Chinese, Japanese, Korean, Russian, and several other languages.
- Type (Programming tool, integrated development environment etc.): Front-end JavaScript framework for building user interfaces and single-page applications
- Website: https://vuejs.org/
- Features: Reactive and composable view components, declarative rendering, two-way data binding, virtual DOM, transitions and animations, and an ecosystem of third-party plugins and packages.
- Size (in MB, GB, etc.): The size of Vue.js depends on the specific version and the features used in the application.
- Privacy and Security: Vue.js itself does not handle user data or security directly, but it can be used in combination with other tools and services to create secure web applications.
- Type of software (Open source/License): Vue.js is open source software distributed under the MIT License.
- If License- Provide details: The MIT License is a permissive open-source license that allows free use, modification, and distribution of the software without restrictions, but with no warranty or liability for the developer.
- Latest version: 3.2.31 (as of February 14, 2023)
- Cloud support (Yes/No): Yes, Vue.js can be hosted on cloud-based services and platforms.
- Applicability: Vue.js is widely used for creating user interfaces and single-page applications, especially in combination with other front-end and back-end tools and frameworks.
- Drawbacks: Some of the drawbacks of Vue.js include the relatively steep learning curve for beginners, limited mobile support, and a smaller community compared to some other front-end frameworks.

11. React

- Original author: Jordan Walke
- Developers: Facebook and community contributors
- Initial release: March 2013
- Stable release: 18.0.2 (as of February 14, 2023)
- Preview release: N/A
- Repository (with cloud support): Yes, React has a GitHub repository and supports cloud-based hosting services such as Netlify and Heroku.
- Written in (Languages): JavaScript
- Operating System support: Cross-platform, works on any operating system that supports a web browser

- Platform, portability: Web-based and supports any platform that can access a web browser. Available in (Total languages): React documentation is available in several languages, including English, Spanish, French, Chinese, and Japanese.
- List of languages supported: React documentation is available in English, Spanish, French, Chinese, Japanese, Korean, Russian, and several other languages.
- Type (Programming tool, integrated development environment etc.): Front-end JavaScript library for building user interfaces and web applications.
- Website: https://reactjs.org/
- Features: Component-based architecture, virtual DOM, declarative syntax, one-way data binding, and an extensive ecosystem of third-party packages and tools.
- Size (in MB, GB, etc.): The size of React depends on the specific version and the features used in the application.
- Privacy and Security: React itself does not handle user data or security directly, but it can be used in combination with other tools and services to create secure web applications.
- Type of software (Open source/License): React is open source software distributed under the MIT License.
- If License- Provide details: The MIT License is a permissive open-source license that allows free use, modification, and distribution of the software without restrictions, but with no warranty or liability for the developer.
- Latest version: 18.0.2 (as of February 14, 2023)
- Cloud support (Yes/No): Yes, React can be hosted on cloud-based services and platforms. Applicability: React is widely used for creating user interfaces and web applications, especially in combination with other front-end and back-end tools and frameworks.
- Drawbacks: Some of the drawbacks of React include the need to use JSX syntax, which can be unfamiliar for some developers, and the relatively steep learning curve for beginners. Additionally, some developers find that the component-based architecture of React can lead to overly complex code and reduced performance in some cases.

★ **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.**
https://colab.research.google.com/drive/1-TEEOMnsgq7BI4bwcuoVPQM-pOXTvkmI?usp=sharing