SE 216 – SOFTWARE PROJECT MANAGEMENT
SOFTWARE TOOLS DOCUMENT

PROJECT NAME: ECOLIB

GROUP NUMBER and MEMBERS: Group 7 / Alp BOSTANCI, Alper Özgür ŞAHİN, Efe YOLARTIRAN, Havvanur KARAKAYA, Kaan OĞUZER, Tugay AVYÜZEN

TASK #	PROJECT TASKS WHICH REQUIRE SOFTWARE TOOL SUPPORT
1	Image Processing System
2	Database Management System
3	User Interface Design

Languages in which the project will be developed: The project will be developed with python and react native languages. Python's simple and readable syntax speeds up the development process and makes the code easier to maintain. OpenCV, one of the popular libraries for image processing algorithms, will be used for image processing and it is compatible with Python. React Native is also an efficient way to develop mobile apps quickly. It can run on both Android and iOS platforms and can quickly span both platforms using the same codebase.

SOFTWARE TOOLS FOR TASK 1:

Tool Cost/Training/Functionality Data

Tool	Amazon Rekognition	Microsoft Azure Computer Vision	TensorFlow	OpenCV
Cost	$2592/y	$5430/y	$2860/y	$1548/y
Training Days	3	3	14	5
Functionality	85	85	95	90

Normalized Cost/Training/Functionality Data

Tool	Amazon Rekognition	Microsoft Azure Computer Vision	TensorFlow	OpenCV
Cost	47	100	51	28
Training Days	21	21	100	36
Functionality	89	89	100	95

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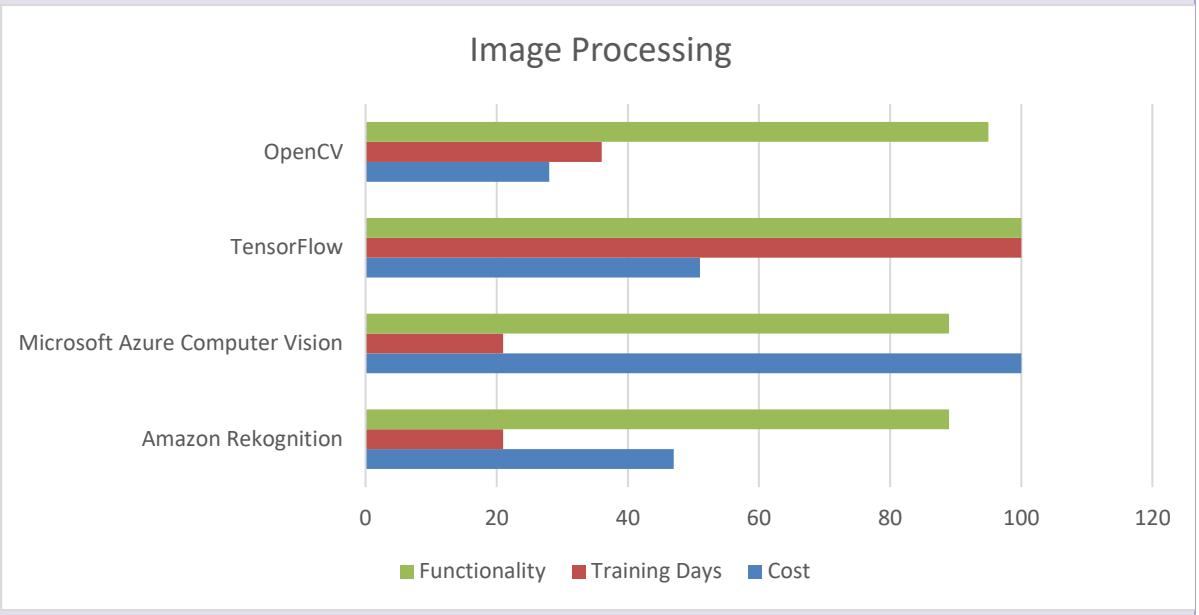
Normalized Tool Graph



Which tool did we choose and why?

We chose OpenCV for our library software project because of its versatility, cost effectiveness and extensive capabilities. OpenCV offers a wide range of functionality, including object detection and recognition, making it a perfect fit with our project requirements. Python with OpenCV is a powerful combination for image processing tasks. OpenCV is a popular open-source library that provides a wide range of functions for image and video analysis, including object detection, facial recognition, image segmentation, and more. Python's simplicity and flexibility make it easy to implement complex image processing algorithms and integrate them into your application. Thanks to being open source, OpenCV offers a cost-effective solution that enables efficient allocation of resources. In addition, its extensive documentation and active community support provide access to valuable resources to overcome challenges. Overall, OpenCV is an ideal choice to effectively enhance the functionality of our library software.

SOFTWARE TOOLS FOR TASK 2:

Tool Cost/Training/Functionality Data

Tool	MySQL Standard Edition	Microsoft SQL Server	PostgreSQL	MongoDB
Cost	$2,140/y	$1,418/y	$0	$684/y
Training Days	5	10	5	10
Functionality	76	85	85	86

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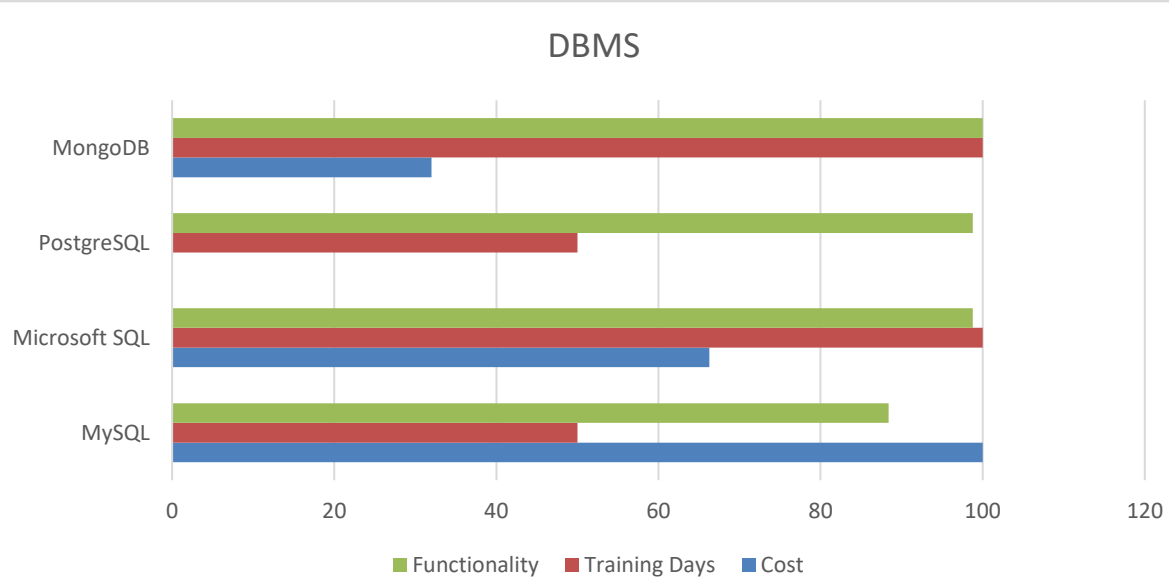
Normalized Cost/Training/Functionality Data

Tool	MySQL	Microsoft SQL Server	PostgreSQL	MongoDB
Cost	100	66,3	0	32
Training Days	50	100	50	100
Functionality	88,4	98,8	98,8	100

Normalized Tool Graph



Which tool did we choose and why?

For the Library Reservation System project, we chose PostgreSQL as the database management system (DBMS) because of its versatility, performance and cost-effectiveness, especially when image processing is included. PostgreSQL's robust features are well suited for handling various types of data, including images obtained through image processing. Thanks to its support for storing binary data efficiently, PostgreSQL can effectively manage the storage of processed images within the database. Furthermore, PostgreSQL's advanced SQL capabilities enable seamless integration with the Python programming language, the language chosen for the development of our project. Through Python's libraries such as psycopg2, PostgreSQL can be easily accessed and manipulated, ensuring a seamless interaction between the image processing system and the database. This integration enables efficient storage, retrieval and management of image data within the Library Reservation System, increasing its functionality and performance. Furthermore, PostgreSQL's security features and community support further strengthen its suitability for long-term development and maintenance of the library software.

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SOFTWARE TOOLS FOR TASK 3:

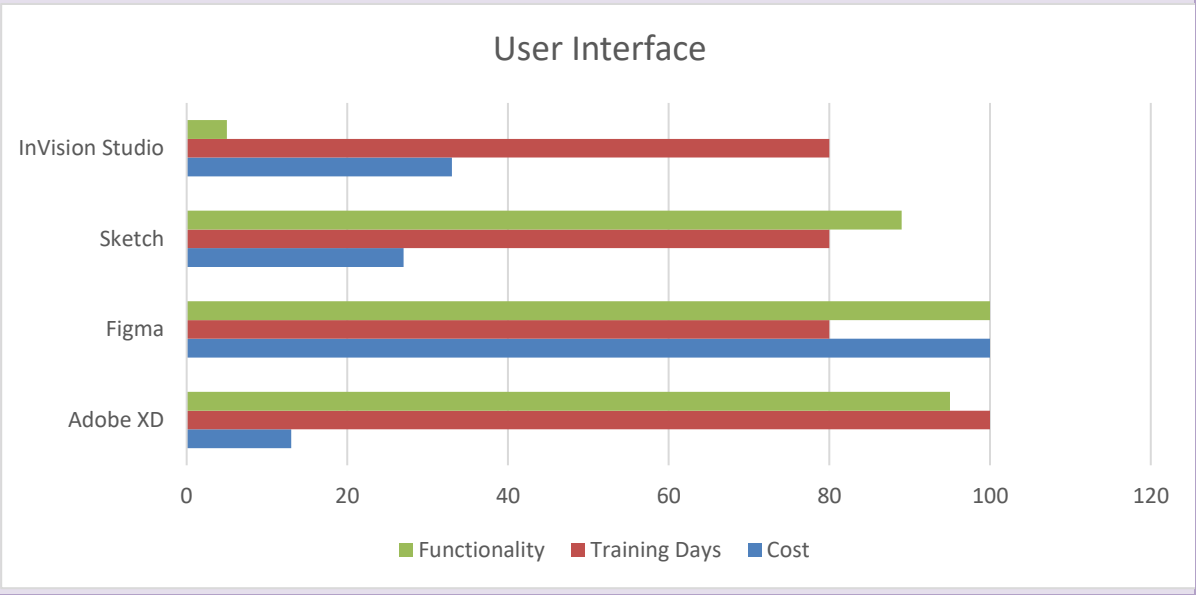
Tool Cost/Training/Functionality Data

Tool	Adobe XD	Figma	Sketch	InVision Studio
Cost	$120/y	$900/y	$240/y	$300/y
Training Days	5	4	4	4
Functionality	90	95	85	88

Normalized Cost/Training/Functionality Data

Tool	Adobe XD	Figma	Sketch	InVision Studio
Cost	13	100	27	33
Training Days	100	80	80	80
Functionality	95	100	89	93

Normalized Tool Graph



Which tool did we choose and why?

Adobe XD is a convenient tool for UI (user interface) design of mobile apps developed with React Native. Adobe XD simplifies mobile app design with its user-friendly interface and rich feature set. The benefits of Adobe XD include the following: First, Adobe XD's drag-and-drop interface allows you to create rapid prototypes, so you can quickly test and iterate on design ideas. Second, Adobe XD's shareable prototype capabilities enable the design team and stakeholders to easily provide feedback and collaborate. Third, Adobe XD's import and export capabilities make it easy for designers to integrate their designs directly into React Native apps and for developers to code those designs. Finally, Adobe XD's broad library support and user interface elements accelerate mobile app design and ensure a consistent look and feel. For these reasons, Adobe XD is a suitable and useful tool for UI design of mobile apps developed with React Native.