SE 216 – SOFTWARE PROJECT MANAGEMENT
SOFTWARE TOOLS DOCUMENT

PROJECT NAME: **TRUE POSTURE**

GROUP NUMBER and MEMBERS: **Section 2 Group 8**

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Project GitHub Account

https://github.com/SE216-8/TruePosture

TASK #	PROJECT TASKS THAT REQUIRE SOFTWARE TOOL SUPPORT
1	Cloud-Based
2	Image Processing
3	Progress Tracking
4	Usability(Virtual Design)
5	User Membership System(Database System)
6	Software Language

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SOFTWARE TOOLS FOR TASK 1 Cloud-Based

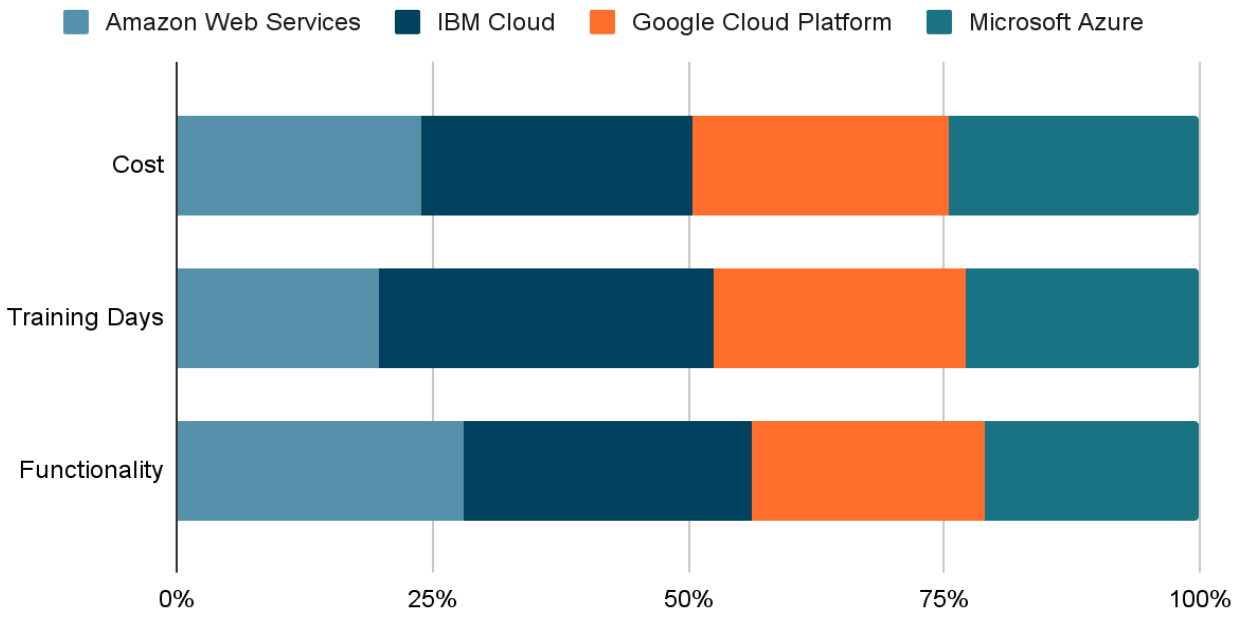
Tool Cost/Training/Functionality Data

Tool	Amazon Web Services	IBM Cloud	Google Cloud Platform	Microsoft Azure
Cost	770$	860$	810$	790$
Training Days	12	20	15	14
Functionality	80	80	65	60

Normalized Cost/Training/Functionality Data

Tool	Amazon Web Services	IBM Cloud	Google Cloud Platform	Microsoft Azure
Cost	89.5	**100**	94.1	91.8
Training Days	60	**100**	75	70
Functionality	100	**100**	81.25	75

Normalized Tool Graph



Which tool has been selected? Why?

The chosen tool is Amazon Web Services (AWS). This option's well-balanced offering of high functionality (tied for highest), comparatively low cost (second lowest), and the least amount of training time needed is probably why people chose it. Because of these factors combined, AWS is a very attractive choice for businesses seeking a feature-rich cloud solution that is comparatively simpler and faster to implement. Lastly, there are numerous sources because AWS has the largest market share of usage. Being more secure in terms of security is also a crucial consideration while selecting it.

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SOFTWARE TOOLS FOR TASK 2 Image Processing

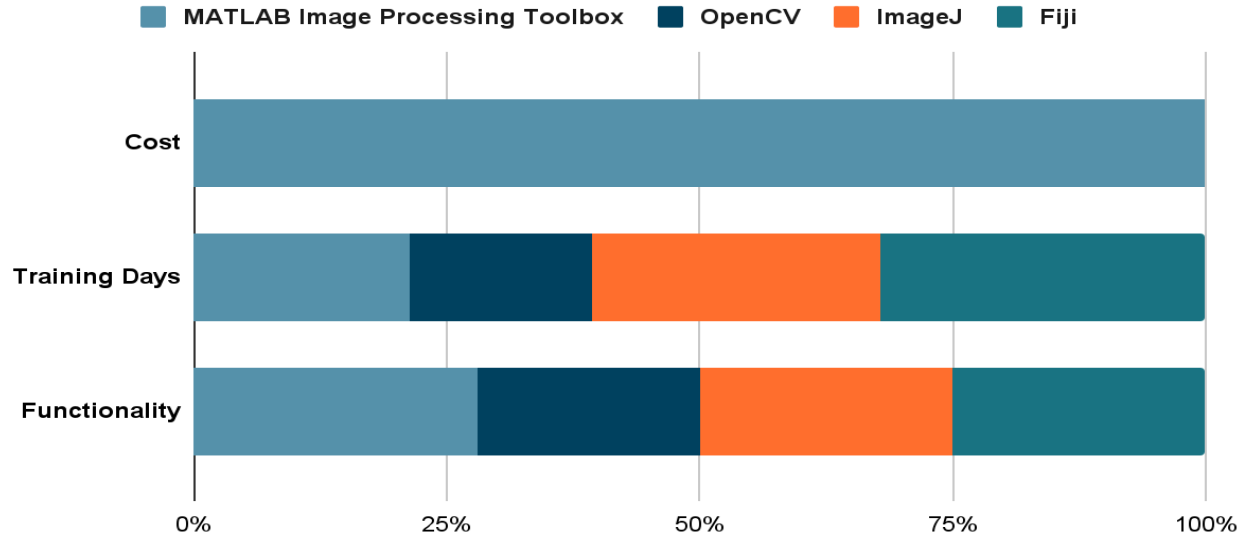
Tool Cost/Training/Functionality Data

Tool	MATLAB Image Processing Toolbox	OpenCV	ImageJ	Fiji
Cost	490$	0$	0$	0$
Training Days	30	25	40	45
Functionality	90	70	80	80

Normalized Cost/Training/Functionality Data

Tool	MATLAB Image Processing Toolbox	OpenCV	ImageJ	Fiji
Cost	**100**	0	0	0
Training Days	**100**	50	33.3	33.3
Functionality	**100**	77.7	88.8	88.8

Normalized Tool Graph



Which tool has been selected? Why?

The chosen tool is Matlab. Their unrivaled blend of high functionality and low training requirements make them the ideal choice for projects or organizations looking for efficient image processing solutions that won't break the bank or have a long learning curve. It also stands out one step further as it provides easier access and ease of use to some algorithms to be used in image processing. On the last page, algorithm details of MATLAB will be explained in more detail.

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SOFTWARE TOOLS FOR TASK 3 Progress Tracking

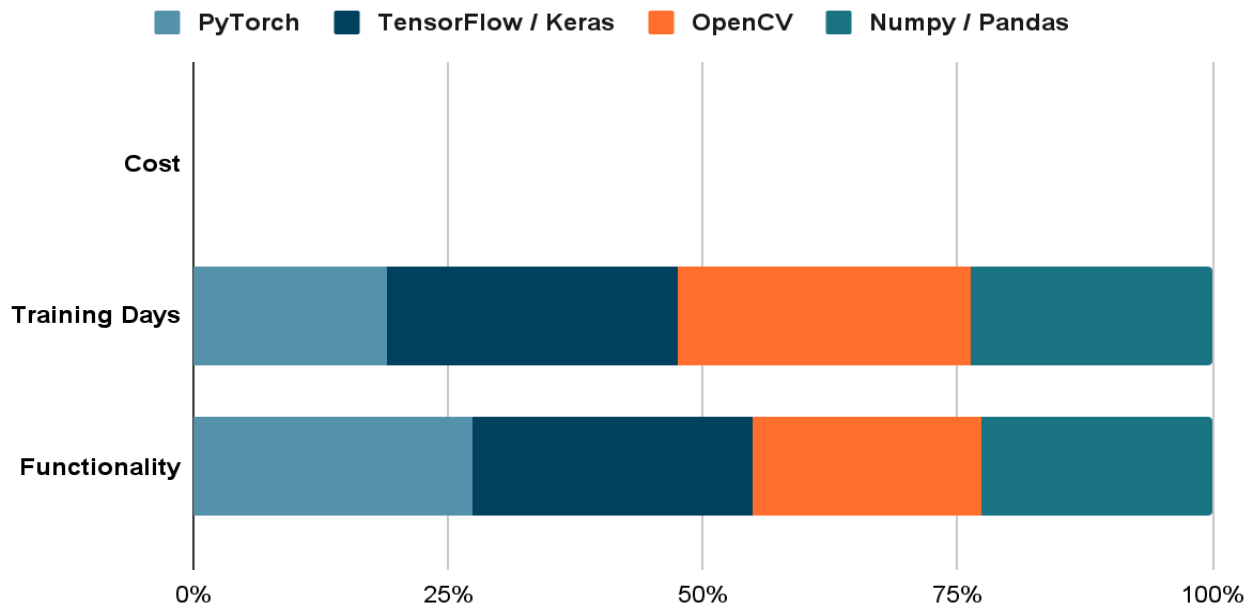
Tool Cost/Training/Functionality Data

Tool	PyTorch	TensorFlow / Keras	OpenCV	Numpy / Pandas
Cost	0$	0$	0$	0$
Training Days	16	24	24	20
Functionality	85	85	70	70

Normalized Cost/Training/Functionality Data

Tool	PyTorch	TensorFlow / Keras	OpenCV	Numpy / Pandas
Cost	100	**100**	100	100
Training Days	66.6	**100**	100	83.3
Functionality	100	**100**	82.3	82.3

Normalized Tool Graph



Which tool has been selected? Why?

The chosen tool is PyTorch. This decision was made due to its superior trade-off between high functionality and comparatively shorter training times when compared to OpenCV and TensorFlow/Keras. While being a little bit simpler and quicker for beginners to learn, PyTorch offers an extensive feature set that satisfies a variety of machine learning and deep learning demands.

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SOFTWARE TOOLS FOR TASK 4 Usability(Virtual Design)

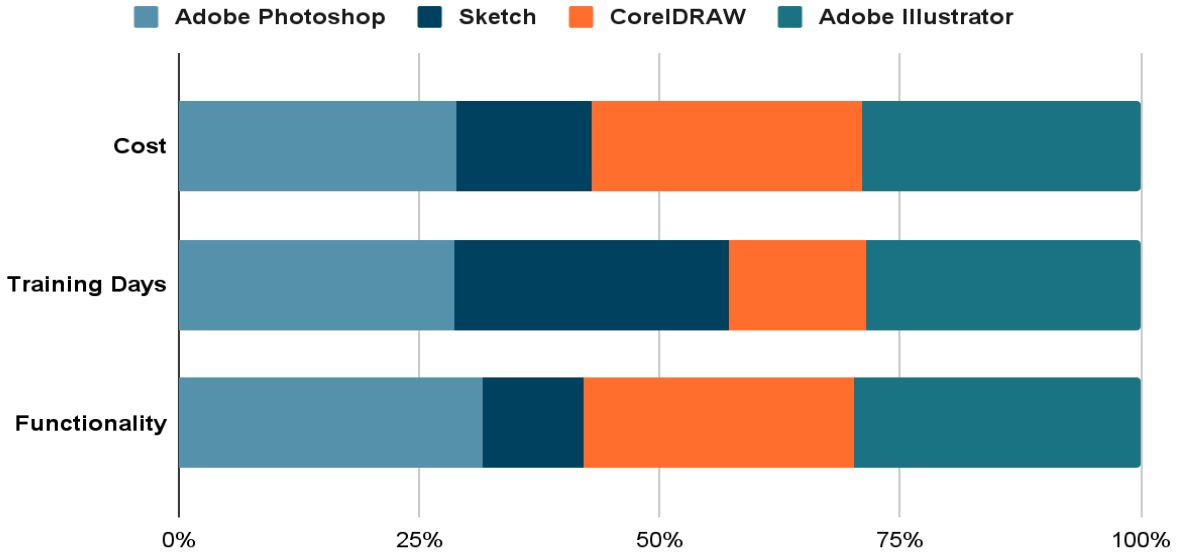
Tool Cost/Training/Functionality Data

Tool	Adobe Photoshop	Sketch	CorelDRAW	Adobe Illustrator
Cost	250$	120$	243$	250$
Training Days	2	2	1	2
Functionality	90	30	80	85

Normalized Cost/Training/Functionality Data

Tool	Adobe Photoshop	Sketch	CorelDRAW	Adobe Illustrator
Cost	**100**	48	97.2	100
Training Days	**100**	100	50	100
Functionality	**100**	33.3	88.8	94.4

Normalized Tool Graph



Which tool has been selected? Why?

The chosen tool is Adobe Photoshop. Despite its higher cost and longer learning curve, Adobe Photoshop is the recommended option for jobs requiring extensive graphic design capabilities. For individuals who want a strong combination of vector graphics features at a somewhat lower cost and a shorter learning curve, CorelDRAW stands out as a balanced solution. Our MacOS-friendly project is not compatible with Sketch. **Note**: This tool will be used for 2d human body parts.

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SOFTWARE TOOLS FOR TASK 5 Database System

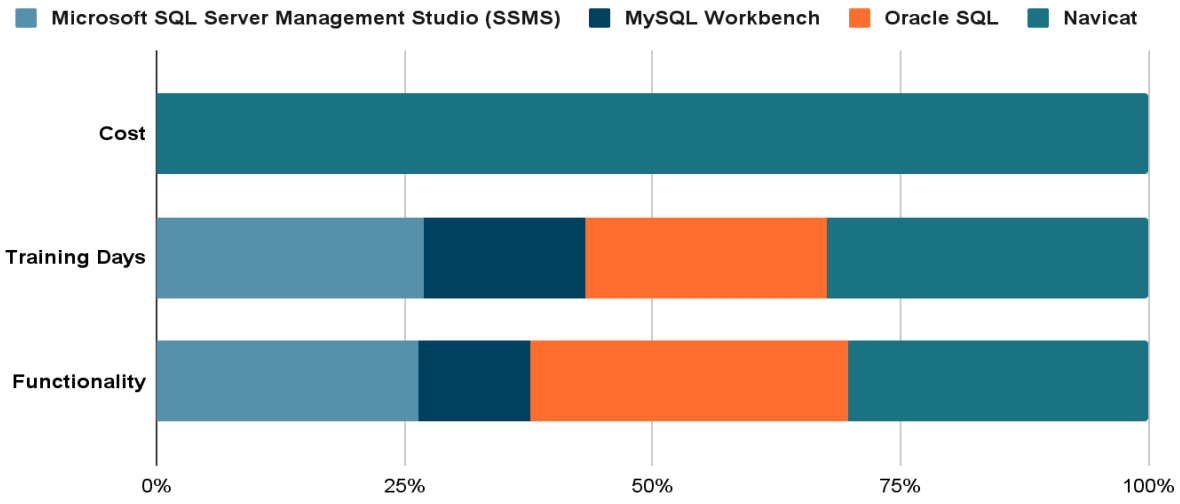
Tool Cost/Training/Functionality Data

Tool	Microsoft SQL Server Management Studio (SSMS)	MySQL Workbench	Oracle SQL	Navicat
Cost	0$	0$	0$	1400$
Training Days	50	30	45	60
Functionality	70	30	85	80

Normalized Cost/Training/Functionality Data

Tool	Microsoft SQL Server Management Studio (SSMS)	MySQL Workbench	Oracle SQL	Navicat
Cost	0	0	0	**100**
Training Days	83.3	50	75	**100**
Functionality	87.5	50	93.75	**100**

Normalized Tool Graph



Which tool has been selected? Why?

The most suitable tool is Oracle. Although MySQL has a lower training time, it is less functional and more difficult to use. Microsoft SQL, on the other hand, has higher functionality, and is more difficult to use. Navicat is also a more expensive and less functional tool compared to Oracle SQL. In conclusion, Oracle SQL is the ideal choice for those looking for a tool that is low-cost, easy to use, and has high functionality.

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SOFTWARE TOOLS FOR TASK 6 Software Language

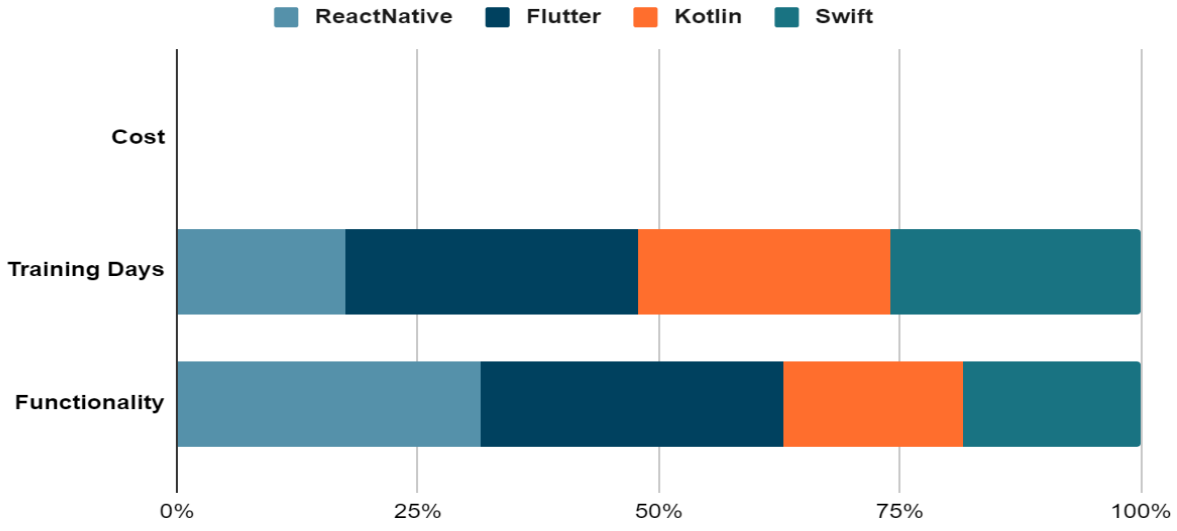
Tool Cost/Training/Functionality Data

Tool	ReactNative	Flutter	Kotlin	Swift
Cost	0$	0$	0$	0$
Training Days	40	70	60	60
Functionality	85	85	50	50

Normalized Cost/Training/Functionality Data

Tool	ReactNative	Flutter	Kotlin	Swift
Cost	0	**100**	0	0
Training Days	57.7	**100**	85.7	85.7
Functionality	100	**100**	58.8	58.8

Normalized Tool Graph



Which tool has been selected? Why?

The chosen tool is React Native. Kotlin is only compatible with Android and Swift is only compatible with MACOS. For this reason, they are eliminated from the beginning. Although Flutter offers a compatible and easy structure for both, it lags behind React Native due to algorithms and other requirements. The most suitable option is determined to be React Native.

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Which tool has been selected for "image processing"?

Image Processing Toolbox: This toolbox of MATLAB provides a variety of image processing functions ranging from fundamental to advanced processing and analysis. It includes functions such as filtering, segmentation, morphological operations, and more.

Computer Vision Toolbox: This toolbox contains algorithms and functions for image processing and computer vision applications. It is used in areas such as object detection, stereo vision, motion estimation, etc.

Image Acquisition Toolbox: This toolbox provides tools for acquiring images from cameras and other sensors using MATLAB. It is used for live image capture and processing in image processing applications.

Image Segmentation Toolbox: A toolbox used for segmenting objects in images, containing algorithms for this purpose.

Image Registration Toolbox: This toolbox includes tools and algorithms for image registration processes. It allows for transformation and alignment operations between different images.

Image Enhancement Toolbox: This toolbox contains tools for improving image quality and enhancing visual presentation. It includes functions such as contrast enhancement, noise reduction, etc.