SE 216 – SOFTWARE PROJECT MANAGEMENT
SOFTWARE TOOLS DOCUMENT

PROJECT NAME: SharpFridge
GROUP NUMBER and MEMBERS: Group-2; Canercan Demir, Merve Topal, Yiğit Mora, Yağmur Duvan, Kaan Dönmez, Berkay Işık

TASK #	PROJECT TASKS WHICH REQUIRE SOFTWARE TOOL SUPPORT
1	Mobile Push Notifications
2	Database Integration
3	Product Icons
4	Project Task Management

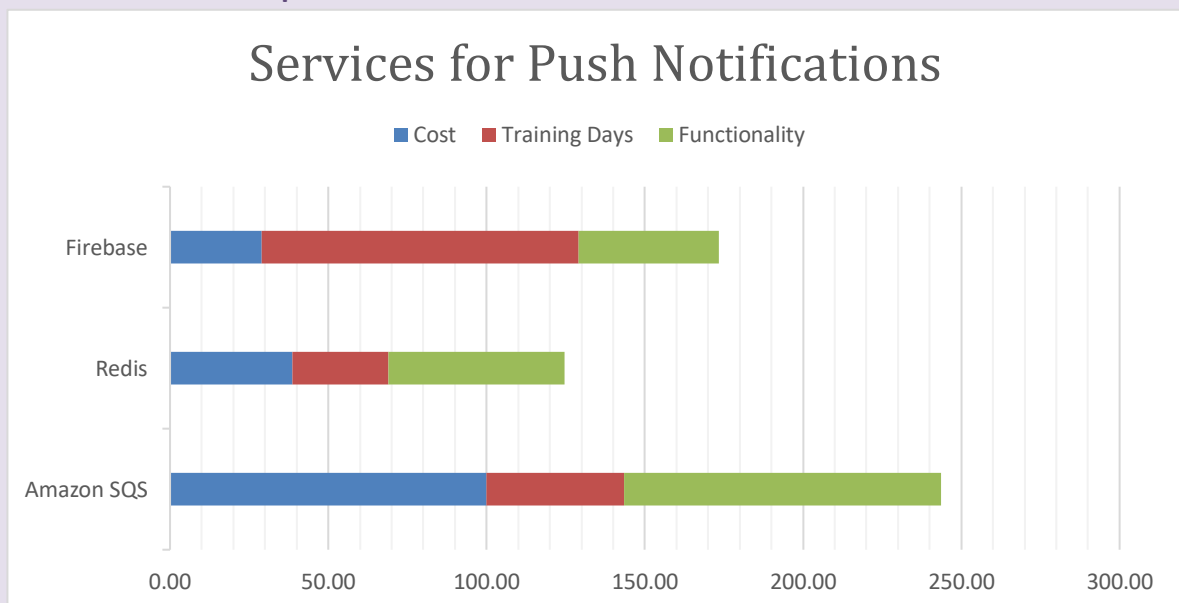**SOFTWARE TOOLS FOR TASK 1: Mobile Push Notifications**

Tool Cost/Training/Functionality Data

Tool	Amazon SQS	Redis	Firebase
Cost	$1,552.42/mo	$600/mo	$450/mo
Training Days	10	7	23
Functionality	90	50	40

Normalized Cost/Training/Functionality Data

Tool	Amazon SQS	Redis	Firebase
Cost	**100**	38.7	29.0
Training Days	43.5	30.4	**100**
Functionality	**100**	55.5	44.4

Normalized Tool Graph

Which tool has been selected? Why?

For push notification, speed and robustness are more important than costs. Therefore, we choose Amazon simple queue service as our cache database.

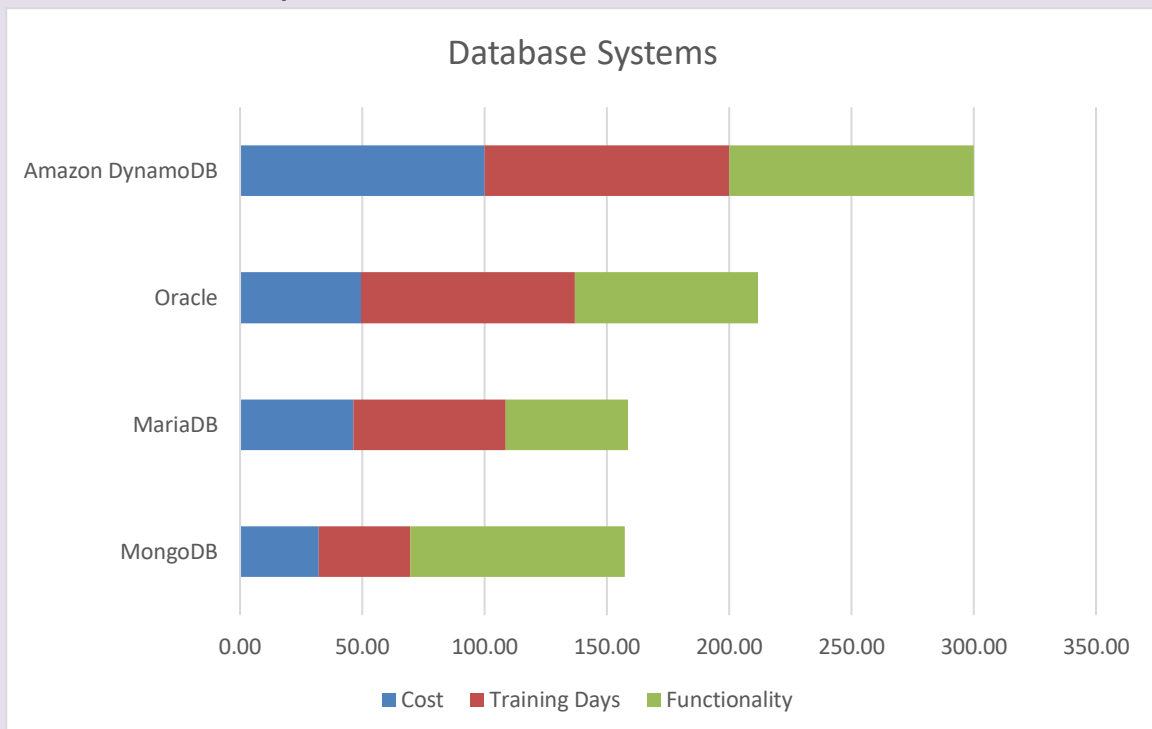**SOFTWARE TOOLS FOR TASK 2: Database Integration**

Tool Cost/Training/Functionality Data

Tool	MongoDB	MariaDB	Oracle	DynamoDB
Cost	$300/Mo	$430/Mo	$460/Mo	$930/Mo
Training Days	3	5	7	8
Functionality	70	40	60	80

Normalized Cost/Training/Functionality Data

Tool	MongoDB	MariaDB	Oracle	DynamoDB
Cost	32.2	46.2	49.4	**100**
Training Days	37.5	62.5	87.5	**100**
Functionality	87.5	50	75	**100**

Normalized Tool Graph

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Which tool has been selected? Why?
 DynamoDB is chosen for its reliablity, speed and flexibility. When there is a huge data traffic, DynaDB handles it well. Functionality ranking reflects the recognition of DynamoDB's scalability, performance, and managed nature, making it highly effective, particularly for large-scale projects.

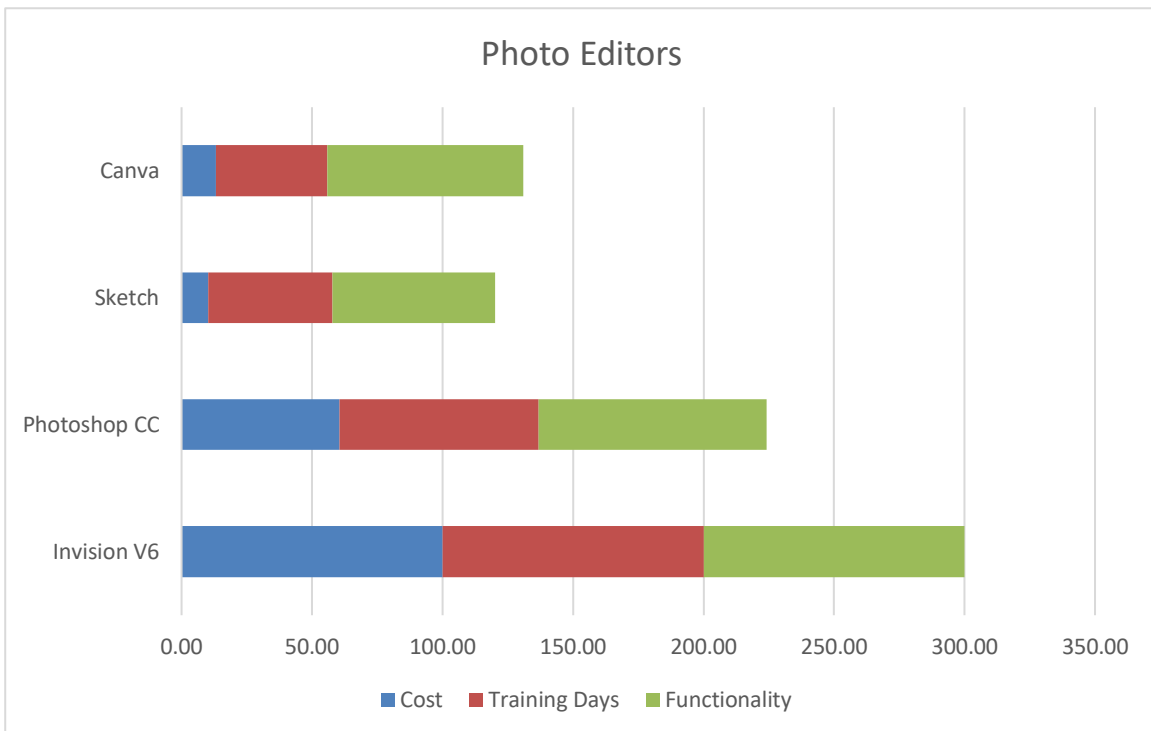**SOFTWARE TOOLS FOR TASK 3: Product Icons**

Tool Cost/Training/Functionality Data

Tool	InVision V6	Photoshop CC	Sketch	Canva
Cost	$99/Mo	$60/Mo	$10/Mo	$13/Mo
Training Days	21	16	10	9
Functionality	80	70	50	60

Normalized Cost/Training/Functionality Data

Tool	InVision V6	Photoshop CC	Sketch	Canva
Cost	**100**	60.6	10.1	13.1
Training Days	**100**	76.1	47.6	42.8
Functionality	**100**	87.5	62.5	75

Normalized Tool Graph

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Which tool has been selected? Why?

Photoshop CC is a popular choice for desing. It is chosen due to the ease of finding a designer, its large community and abundance of resources on the web. Also, its pricing is in accaptable boundaries.

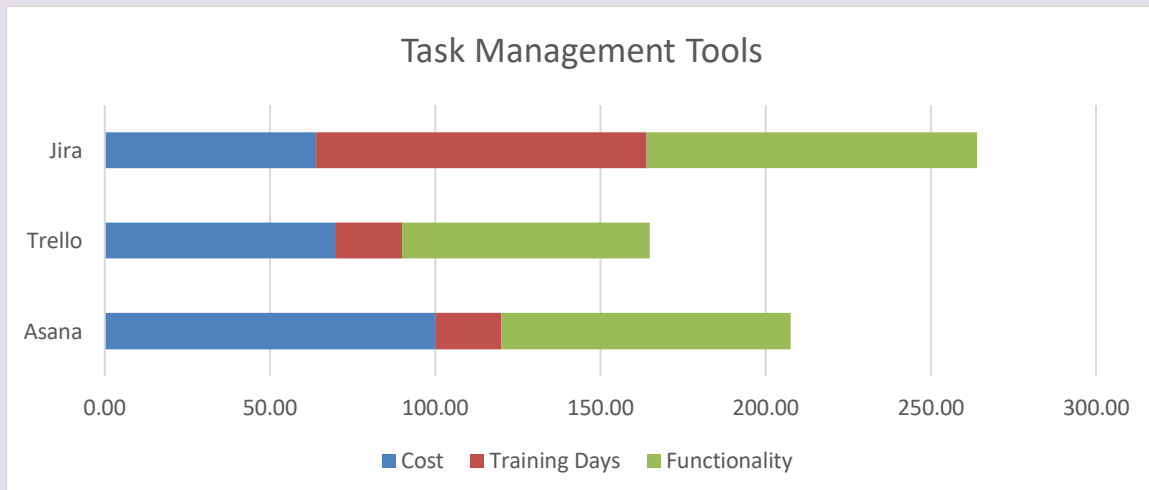## SOFTWARE TOOLS FOR TASK 4: Project Task Management

Tool Cost/Training/Functionality Data

Tool	Asana	Trello	Jira
Cost	$250/Mo	$175/Mo	$160/Mo
Training Days	1	1	5
Functionality	70	60	80

Normalized Cost/Training/Functionality Data

Tool	Asana	Trello	Jira
Cost	**100**	70	64
Training Days	20	20	**100**
Functionality	87.5	75	**100**

Normalized Tool Graph

Task Management Tools

Which tool has been selected? Why?

 For project management, Jira is selected. Jira is more cost-effective. Suitable for large, complex projects with advanced project management needs. Also, agile implementation of Jira is more advanced.

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Which programming languages and main hardware will be used?

This project consist of three major elements which are web API, mobile application and embedded system for fridge interior.

- **Python/Django is selected for REST API between database and mobile application because of its high scalability, easy control, ready-to-use CMS. Furthermore, Django can work with various platforms as well.**
- Since the application should work in multiple platforms, React Native is selected. React native offers native tools with multiplatform support. Also, React Native can integrate well with Django.
- **For embedded development, C++ is selected due to its high-speed and cost-effective design. Since sensor software should work fast and with low processor power, C++ is the selected language .**
- **ARM Cortex-A72 processor Raspberry pi 4-2GB, Raspbian OS will be used with additional microcontrollers for fridge interior computer.**