



**DEPARTMENT OF INFORMATION AND COMMUNICATION
TECHNOLOGY**

**DIPLOMA IN INFORMATION TECHNOLOGY
(DIGITAL TECHNOLOGY)**

DFT50114: INTEGRATED PROJECT

AB MATH GALAXY

GROUP MEMBERS:

MUHAMMAD ZARIF MURAD BIN MUHAMAD

17DDT23F1023

MUHAMMAD DANISH IRFAN BIN MOHD FADIL

17DDT23F1998

SUPERVISOR:

PUAN SHARIZAN BINTI ABDUL JAMIL

SESSION: I 2025/2026

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1.0 Introduction

AB Math Galaxy is more than just an educational application it's a vibrant universe thoughtfully crafted with compassion, innovation and deep understanding of the unique needs of children with special needs. Designed to break conventional boundaries, AB Math Galaxy blends fun, imagination and purposeful learning into one seamless experience, transforming education into an adventure through the stars.

In this extraordinary galaxy, young learners are not just students explorers. With every challenge overcome, every lesson master and every milestone achieve, soar higher, fueled by the power of confidence and curiosity. The app harnesses the magic of space-themed storytelling, interactive games and colourful visuals to capture attention and keep children meaningfully engaged in their learning journey.

AB Math Galaxy focuses on two core learning areas which are Mathematics and Bahasa Melayu, both carefully integrated into age-appropriate modules that align with national learning objectives. Each element of the app is tailored to address the unique learning styles and paces of children with special needs, ensuring that no learner is left behind. Whether it's solving math puzzles or exploring language basics, children are supported, celebrated and inspired every step of the way.

At the heart of AB Math Galaxy is a powerful mission to make education inclusive, engaging and empowering. We believe that every child deserves the right tools and the right environment to reach their full potential. The reason this application is build are not only to teaches, but also touches lives by fostering joy, building resilience, and sparking a lifelong love for learning.

AB Math Galaxy isn't just an app, it's a companion in every child's educational journey. Together, let's open the gateway to a galaxy where learning is limitless and every child can shine.

2.0 Problem Statement

The problem statements are:

1. Children with special educational needs often face challenges in mastering foundational skills due to a mismatch between traditional teaching methods and their unique learning styles.
2. There is a lack of engaging, inclusive educational platforms especially for Mathematics and Bahasa Melayu that align with local curricula and support diverse learning needs.
3. Educators and parents also struggle to effectively track progress and personalize learning without the right tools.

3.0 Objectives

The objectives are:

1. To make an interactive note about mathematics and Bahasa Melayu subject for students to learn.
2. To create a gamified learning application through interactive quizzes and leaderboard enabling teachers and parents to track students' progress and achievements effectively.
3. To develop a fun and inclusive app for learning Mathematics and Bahasa Melayu that follows the local curriculum and supports children with special needs.

4.0 Project Scope

4.1 User Scope

1. Primary Users:

a. Children with Special Needs (Ages: 7 - 9)

- Have low to moderate levels of literacy and numeracy.
- Respond better to visual and auditory content.
- Need simple, guided and interactive navigation.

2. Secondary Users:

a. Special Education Teachers

- Use the app as a teaching aid during class or therapy sessions.
- Monitor student progress through reports or activity tracking.
- Might need control over difficulty levels and lesson content.

b. Parents / Guardians

- Want their child to learn in an engaging and interactive way to do revision.
- Interested in tracking their child's learning progress.
- May assist the child in using the app.

3. User Support Features (Support Scope):

- Child-friendly interface (large buttons, bright colours, clear icons).
- Voice assistance for instructions and content.
- Offline access for homes with limited internet.
- Customizable learning levels (adjustable by teacher or parent).

4.2 System Scope

1. Core Functional Modules:

a. Learning Modules

- Mathematics Module: Basic counting, shapes, simple operations, number matching.
- Bahasa Melayu Module: Word recognition, syllables, sentence building, picture-word matching.
- Includes levels of difficulty (easy to moderate) with guided audio.

b. Interactive Activities / Games

- Drag-and-drop, matching games, puzzles, quizzes.
- Audio-visual feedback for correct/incorrect responses.
- Rewards system (e.g., stars, badges) to motivate learning.

c. User Profiles

- Separate login/profile for each student (basic authentication if needed).
- Progress tracking per user (e.g., scores, completed levels).

d. Progress Reports

- Dashboard for teachers/parents to monitor student activity and achievements.
- Option to export or share simple reports (PDF or on-screen).

2. Accessibility Features:

- Voice guidance for instructions and content.
- Large, colorful buttons and simple navigation.
- High-contrast mode and optional text-to-speech.
- Tap-based interaction (no complex gestures).

3. Administrative Features (Optional):

- Teacher Panel: Manage student accounts, assign modules, view reports.
- Parent Panel: View child's progress, set goals, assist learning.
- Content Management (CMS): Add/edit questions or lessons (for future scalability).

4. Technical Scope:

- Platform: Android (tablet/phone); optional web version in future.
- Offline Mode: Access learning modules without internet after initial download.
- Data Storage: Local storage for offline use; optional cloud backup (if needed).

5.0 Project Significance





Promotes Inclusive and Accessible Learning: AB Math Galaxy is made especially for children with special learning needs. It helps every student learn in their own way and at their own speed. The lessons are fun, easy to follow and match what students learn in school. This way, everyone gets a fair chance to learn and enjoy their studies.

Enhances Engagement Through Gamification and Storytelling: AB Math Galaxy uses fun space stories, games and bright colours to make learning exciting. It feels like going on an adventure while learning new things. This helps students stay interested, enjoy the lessons and understand ideas more easily

Supports Development of Core Academic Skills. AB Math Galaxy helps students learn Mathematics and Bahasa Melayu in a fun and simple way. The lessons are made for their age and skill level, so they can understand better. With games and activities, students can learn step by step and move forward at their own speed.

Builds Confidence and Emotional Resilience. AB Math Galaxy isn't just about learning school subjects it also helps students feel proud of themselves. The app gives praise and rewards when they do well, helping them feel more confident and independent. It makes learning fun and encourages students to keep trying.

6.0 Literature Review

Application Characteristic	 <p>Make it</p> <p>https://apps.apple.com/my/app/make-it-create-learning-games/id1182354738</p>	 <p>Todo Math</p> <p>https://apps.apple.com/my/app/todo-maths/id666465255</p>	 <p>Boom Cards</p> <p>https://apps.apple.com/my/app/boom-cards/id1041141473</p>	 <p>AB Math Galaxy</p>
Safety and Ad-Free Usage	Make It does not guarantee an ad-free experience, posing potential distractions for children	Ensure a safe learning environment by being free from advertisements, which is crucial for maintaining focus and avoiding distractions	Ensure a safe learning environment by being free from advertisements, which is crucial for maintaining focus and avoiding distractions	Ensure a safe learning environment by being free from advertisements, which is crucial for maintaining focus and avoiding distractions
Voice Control Accessibility	Lack this critical support feature.	Lack this critical support feature.	Lack this critical support feature.	AB Math Galaxy stands out by offering voice control features, providing an essential accessibility tool for children with motor difficulties
Parental and Teaching	Does not support this feature	Support interaction with parents or teachers, which allows for guidance, monitoring, and personalized feedback	Support interaction with parents or teachers, which allows for guidance, monitoring, and personalized feedback	Support interaction with parents or teachers, which allows for guidance, monitoring, and personalized feedback
Curriculum Alignment	Does not have this feature	Designed to follow the school syllabus, ensuring content relevance and support for formal education goals.	Designed to follow the school syllabus, ensuring content relevance and support for formal education goals.	AB Math Galaxy specifically aligns with both Mathematics and Bahasa Melayu components of the national curriculum.

7.0 Methodology



7.0 Agile Method Diagram

In developing AB Math Galaxy, we used the Agile method to help us build the app step by step. Agile allowed us to improve the app based on feedback from teachers, parents, and children with special needs. Instead of doing everything at once, we worked in small parts (called iterations), so we could test, fix, and improve quickly. This approach helped us make sure the app was fun, useful, and suitable for different learning needs. By using Agile, we created an educational app that is flexible, engaging, and truly supports every child's learning journey.

No.	Phase	Activities
1.	Requirement	<ul style="list-style-type: none">• Conduct initial discussions with team members and educators.• Identify target users (ages 7- 9, remedial students).• Define project goals and learning objectives.• Create user stories and product backlog.
2.	Design	<ul style="list-style-type: none">• Design the user interface with space-themed visuals suitable for children.• Create wireframes and flowcharts for learning modules.• Plan sprint tasks and timelines using Gantt Chart.
3.	Development	<ul style="list-style-type: none">• Develop Math and Bahasa Melayu modules in each sprint.• Conduct internal testing after each sprint.• Fix bugs and refine features based on test results.
4.	Testing	<ul style="list-style-type: none">• Integrate all modules into the full application.• Perform usability testing with actual users.
5.	Review	<ul style="list-style-type: none">• Collect feedback from users and stakeholder.• Make improvements based on feedback.• Prepare for future updates and scalability.

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https://en.wikipedia.org/wiki/Agile_software_development

9.0 Gantt Chart

PROJECT NAME		AB MATH GALAXY	START DATE	END DATE	OVERAL PROGRESS	MEMBERS: MUHAMMAD DANISH IRFAN BIN MOHD FADIL
PROJECT MANAGER		MUHAMMAD ZARIF MURAD BIN MUHAMMAD	14-07-25		IN PROGRESS	
NO	PHASES/ACTIVITIES	START	FINISH	DURATION (days)	COMMENTS	
1	PLANNING					
1.1	Identify user requirement	14-07-25	14-07-25	1		
1.2	Identify features of the app	15-07-25	15-07-25	1		
1.3	Assign roles between team members	16-07-25	16-07-25	1		
1.4	Determine cost requirement	17-07-25	17-07-25	1		
1.5	Determine time requirement	18-07-25	18-07-25	1		
1.6	Create project timeline	19-07-25	19-07-25	1		
1.7	Create project planning report	20-07-25	21-07-25	2		
2	Design					
2.1	Identify which design suitable for app	22-07-25	26-07-25	5		
2.2	Design app layout	27-07-25	31-07-25	4		
2.3	Design app interface	01-08-25	04-08-25	5		
2.4	Design app flowchart	05-08-25	05-08-25	1		
2.5	Design app storyboard	06-08-25	06-08-25	1		

3	Develop					
3.1	Develop interface for notes	07-08-25	09-08-25	3		
3.2	Develop interface for exercise	10-08-25	12-08-25	3		
3.3	Implement gamification (leaderboards and marks)	13-08-25	18-08-25	6		
3.4	Develop interface for quizzes	19-08-25	21-08-25	3		
3.5	Develop UI components	22-08-25	25-08-25	4		
4	Test					
4.1	Conduct unit testing	26-08-25	27-08-25	2		
4.2	Address defects and bugs	28-08-25	29-08-25	2		
4.3	Conduct user acceptance testing	30-08-25	31-08-25	2		
4.4	Conduct integration testing	01-09-25	01-09-25	1		
4.5	Conduct system testing	02-09-25	03-09-25	2		
4.6	Create test report	04-09-25	05-09-25	2		
5	Develop					
5.1	Finalize release checklist	06-09-25	06-09-25	1		
5.2	Deploy game to platform	07-09-25	07-09-25	1		
5.3	Verify deployment	08-09-25	09-09-25	2		
5.4	Announce app release	10-09-25	10-09-25	1		
6	Review					
6.1	Gather feedback from customer	11-09-25	11-09-25	1		
6.2	Analyze feedback	12-09-25	12-09-25	1		
6.3	Assess Metrics	13-09-25	14-09-25	2		
6.4	Evaluate user management	15-09-25	15-09-25	1		
6.5	Create review report	16-09-25	16-09-25	2		

10.0 Cost Planning

The development of the AB Math Galaxy App involves two primary cost components: hardware and software.

Hardware Costs

1. Hardware is needed to develop, test, and demonstrate the app on various platforms (smartphones, tablets and PCs).
2. Testing devices are essential to ensure that the app runs smoothly across different screen sizes and operating systems (Android and iOS).
3. Additional hardware may be required for developers during the development phase (e.g., laptops and storage drives)

Software Costs

1. Developing a dual-language educational mobile application that supports accessibility features (voice control, text customization and school syllabus integration).
2. Costs include content development, UI/UX design, voice command integration, and progress tracking systems for parents and teachers.
3. Additional costs involve annual app store registrations, cloud hosting, and software licenses for design and development tools.

Hardware Costs

Component	Specifications	Quantity	Unit Cost (RM)	Total Cost (RM)
Laptop for Development	16GB RAM, SSD, i7 CPU	2	RM 4,500	RM 9,000
Smartphone (test)	Android/iOS device	1	RM 1,200	RM 1,200
Total Hardware Cost		3		RM 10,200

Software Costs

Component	Details	Quantity	Unit Cost (RM)	Total Cost (RM)
Mobile App Development	Android (frontend & backend)	1	RM 400	RM400
UI/UX Design	Child-friendly, accessible design for special education	1	RM 70	RM 70
Voice Control Integration	Speech-to-text APIs for motor-impaired children	1	RM 20	RM 20
App Store Registration	Google Play (onetime)	1	RM 80	RM 80
Total Software Cost		4		RM 570

11.0 Conclusion

By thoughtfully integrating carefully selected hardware components with robust, purpose-driven software development, AB Math Galaxy emerges as a comprehensive and innovative solution in the dynamic and growing field of special education technology. This holistic approach ensures that the application is not only technically sound but also deeply aligned with the specific learning needs and challenges faced by children with special needs.

The hardware selection process emphasizes accessibility, durability and user-friendliness, making sure that the devices used can support consistent and comfortable interaction for young learners. Whether accessed via tablets, touchscreen devices or assistive tools, AB Math Galaxy delivers a smooth and intuitive experience that removes barriers to entry and encourages independent learning.

Complementing this hardware foundation is a thoughtfully engineered software system designed to engage, adapt and evolve. With interactive modules in Mathematics and Bahasa Melayu, the app responds to the learner's pace, providing personalized feedback and guidance that builds both competence and confidence. The software is rich in visual stimuli, audio cues, and gamified elements which are proven to maintain attention and motivation in special education contexts.

As the demand for inclusive and effective educational tools continues to rise globally, AB Math Galaxy proudly positions itself at the forefront of this movement. It stands not merely as an application, but as a transformative learning platform a bridge between technology and human potential where every child, regardless of their challenges, is given the opportunity to learn, grow, and succeed.