

The following table outlines all the required elements for the student-centric homepage based on the provided product specification and maps them to the corresponding tables and columns in the existing database schema.

Student Homepage Requirements and Database Mapping

Index	Section & Heading	Live Database Mapping (Table.Column)	Homepage Component	What to infer from Output	There's a Caveat here
1.0	Top Section – Next Lesson	<code>classes.meeting_start</code>	Next Lesson Card (Day, Date, Time)	<ul style="list-style-type: none"> Shows the next upcoming lesson like 'Monday', '2026-01-30', '14:30'. Creates the main lesson card 	<ul style="list-style-type: none"> Takes one input: {{student_id}}. Only shows 'pending' lessons that haven't started yet.
1.1		<code>users.full_name,</code> <code>users.avatar</code>	Teacher Information (Name + Avatar)	Displays the teacher's name +profile picture for the next lesson.	<p>Avatar is Dummy data hard coded.</p> <p>Takes input: {{student_id}} parameter</p> <p>Avatar field contains image url of teacher avatar</p>
1.2		<code>classes.join_url,</code> <code>classes.status</code>	Join Lesson CTA (Status Logic)	<ul style="list-style-type: none"> Displays join button 5 min before the class Includes zoom meeting link url 	<ul style="list-style-type: none"> Takes input: {{student_id}} Time is set to 5min and can be changed by changing interval variable

1.3		<code>classes.id, classes.status</code>	Secondary Actions (View schedule, cancel)	0 means student can cancel the class 1 means student cant cancel the class	<ul style="list-style-type: none"> • Takes input: {{student_id}} • Timestampdiff variable is hardcoded to 4hrs but can be changed
1.4		<code>user_subscription_details.left_lessons, user_subscription_details.weekly_lesson</code>	Classes Usage (Classes used vs available)	Tracks weekly classes used vs total If students have multiple subscriptions then shows most recent one	<ul style="list-style-type: none"> • Takes input: {{current_user_id}} parameter • shows only active subscriptions <p>Dummy data hard coded</p>
1.5		classes.status (Logic: check if no 'pending' status exists)	No Lesson State (Book lesson CTA)	Checks if lessons are scheduled. Shows book button if none. Returns 1 to show button, 0 to hide it	Takes input: {{current_user_id}} parameter Returns 1 to show button, 0 to hide it Independent of lesson data Depends only on pending lessons

2.0	Learning Progress Snapshot	<code>student_progress.current_level,</code> <code>level_assessments.detected_level</code>	Current Level (CEFR scale anchor)	Shows student's current CEFR level (A1, A2, B1, B2, C1, C2). CEFR = Common European Framework of Reference. Levels range from A1 (beginner) to C2 (proficient).	Uses the most recent assessment if available, otherwise uses the stored current level. Takes input: {{student_id}} parameter
2.1		Not possible from the existing database (Static mapping)	Level Meaning (One-line explanation)	Provides a simple explanation of what each CEFR level means. For example: 'A2 - Can communicate in simple routine tasks'.	Dummy data hardcoded in the application based on CEFR level (A1-C2). This is static text, not database-driven.
2.2		<code>user_goals.goal_name,</code> <code>classes.student_goal</code>	Current Learning Goal (Personalized goal)	Uses student's goal if set, otherwise uses default to show what the student is currently working towards. For example: 'Improve business English communication' or 'Prepare for IELTS exam'.	Takes student id parameter Priority: 1) User's saved goal, 2) Most recent class-specific goal, 3) Default 'Improve English fluency'
2.3		<code>class_summaries.topics_detected,</code> <code>topics_taught.topic_name</code>	Progress Visualization (3–5 Checkpoints)	Creates a visual progress timeline with checkpoints. Shows the last 5 topics the student has learned	Requires student_id parameter Limited to 5 most recent topics. is_complete shows if teacher

					<p>verified the topic (1 = complete, 0 = in progress).</p> <p>The topics_detected field expects JSON array format with square brackets and quotes.</p>
2.4		class_summaries.areas_for_improvement	Upcoming Learning Focus (Planned direction)	Shows what the student will focus on in upcoming lessons	<p>This is set by the teacher after each lesson.</p> <p>Uses the most recent lesson's teacher feedback. NULL values are excluded. This guides the next lesson's content.</p>
2.5		student_class_queries.query_text (Potential mapping for V2)	Student Focus Request (Free-text input)	<p>Shows what the student specifically requested to work on.</p> <p>This is the student's own input.</p>	<p>Requires student_id parameter</p> <p>Shows most recent request only.</p> <p>This is optional student input</p>
3.0	Skill Snapshot (Progress within Level)	level_assessments.grammar_score, lesson_feedbacks.grammar_rate	Grammar Progress (Percentage layer)	<p>Shows grammar progress as a percentage</p> <p>For example: '78% - Good progress in grammar'.</p>	<p>Formula $\text{Assessment score} \times 0.6 + \text{Average lesson feedback} \times 0.4$. Assessment scores are 0-100, lesson feedback is 1-5 (multiplied by 20 for percentage).</p> <p>Requires student id parameter</p>

3.1		<code>level_assessments.vocabulary_score, student_progress.vocabulary_mastered</code>	Vocabulary Progress (Percentage layer)	<p>Shows vocabulary progress as a percentage.</p> <p>Combines assessment score (50% weight) with number of words mastered (50% weight).</p> <p>For example: '82% - Strong vocabulary base with 150 words mastered'.</p>	<p>Formula used</p> <p>Weighted: Assessment score × 0.5 + (Words mastered / 200) × 100 × 0.5.</p> <p>Vocabulary mastered is capped at 200 words for calculation (100%).</p> <p>Requires student_id parameter</p>
3.2		<code>level_assessments.fluency_score, lesson_feedbacks.speaking_rate</code>	Speaking Progress (Percentage layer)	<p>Shows speaking/fluency progress as a percentage.</p> <p>Combines assessment fluency score (60% weight) with average lesson speaking feedback (40% weight).</p>	<p>Same weighted calculation as grammar: Fluency assessment × 0.6 + Average speaking feedback × 0.4. Speaking feedback is 1-5 scale, multiplied by 20.</p> <p>Requires student_id parameter</p>
3.3		<code>lesson_feedbacks.pronunciation_rate</code>	Pronunciation Progress (Percentage layer)	<p>Shows pronunciation progress based solely on teacher feedback from lessons</p> <p>Returns percentage and average rating</p>	<p>Only uses lesson feedback (no assessment component).</p> <p>Average of all pronunciation ratings from lessons, converted to percentage (rating × 20).</p>

4.0	Practice & Games (Action)	<code>games.exercise_type,</code> <code>games.status</code>	Recent Practice List (Incomplete items)	Shows the 5 most recent practice exercises that haven't been completed	Dummy data inserted Requires student_id parameter for all 4.1, 4.2
4.1		<code>games.class_id,</code> <code>classes.meeting_start</code>	Lesson Reference (Practice source)	Shows which lesson each practice exercise came from, including the date and teacher	Links practice exercises back to their source lessons.
4.2		<code>adaptive_assessment_questions.average_time_seconds</code>	Estimated Time (Minutes)	Shows how long each practice exercise will take	Uses average completion time from past students. Default is 2 minutes (120 seconds) if no data available. Time is rounded up to nearest minute.
5.0	Weekly Highlights	<code>student_progress.vocabulary_mastered,</code> <code>class_summaries.vocabulary_learned</code>	New Words Learned	Shows total number of new words learned this week Counts vocabulary from all completed lessons in the past 7 days.	Time period is hardcoded to 7 days (INTERVAL 7 DAY). Counts words from JSON array in vocabulary_learned field

5.1		<code>classes.id (Count where status = 'ended')</code>	Lessons Completed (Count)	Shows how many lessons the student completed this week. This is a motivational metric showing weekly activity.	Time period is hardcoded to 7 days. Requires <code>student_id</code> parameter for all Only counts lessons with status 'ended'
5.2		<code>class_summaries.engagement_level</code> (Note: exact % may require transcription calc)	Speaking Percentage (Achievement chip)	Shows student engagement as a percentage based on most recent lesson. This is a quick achievement indicator.	<code>{{student_id}}</code> requires parameter Engagement levels map to percentages: <code>very_high=95%</code> , <code>high=85%</code> , <code>medium=70%</code> , <code>low=50%</code> , <code>unknown=60%</code> . Based on teacher's assessment from most recent lesson only.
6.0	System Adaptation Message	Not possible from the existing database (Product-wide static text)	Personalized Confidence Line	Says wow u are learning amazing for now cuz data is not there	Dummy data hardcoded
6.1	Student per Class Learning	<code>classes.id, classes.meeting_start, class_summaries.topics_detect</code>	Class Learning Summary	Shows how much the student has learned in one class	Requires both <code>{{student_id}}</code> and <code>{{class_id}}</code> parameters.

		<code>ed, class_summaries.grammar_concepts, class_summaries.vocabulary_learned, class_summaries.strengths, class_summaries.areas_for_improvement, lesson_feedbacks.grammar_rate, lesson_feedbacks.speaking_rate, lesson_feedbacks.pronunciation_rate, lesson_feedbacks.comment, users.full_name</code>		<p>Provides a complete summary of what the student learned in a specific lesson.</p> <p>Includes topics covered, new vocabulary, grammar points, strengths identified, and overall engagement.</p> <p>This is the detailed post-lesson report.</p>	Remove class_id filter to show all lessons
6.2	Teacher's Next Class Plan	<code>classes.id, classes.meeting_start, classes.student_goal, classes.student</code>	Next Class Planning Focus	Shows what the teacher has planned for the next lesson based on the most recent completed lesson	Requires student_id parameter

		<code>_goal_note, class_summaries.areas_for_improvement</code>		<p>Includes areas for improvement and student's goals. Helps students prepare for upcoming lessons</p> <p>Shows teacher's recommendations for next focus areas..</p>	
6.3	New Words Per Class	<code>classes.id, classes.meeting_start, class_summaries.vocabulary_learned, users.full_name</code>	Words Learned Per Lesson	<p>Returns all completed lessons ordered by date.</p> <p>Shows vocabulary progress per lesson. For example: 'Jan 28 - 12 words, Jan 25 - 8 words'.</p> <p>Helps students see their learning pattern across individual classes.</p>	<p>creates a per-lesson vocabulary learning chart.</p> <p>Word count comes from vocabulary_learned JSON array length.</p> <p>Zero if no vocabulary data recorded.</p>
6.4	Words Per Week	Weekly Vocabulary Statistics	Weekly Vocabulary Statistics	<p>Shows vocabulary learning trends by week.</p> <p>creates a weekly vocabulary chart showing learning consistency over 12 weeks.</p> <p>Useful for identifying study patterns.</p>	<p>Limited to last 12 weeks</p> <p>Groups by calendar week (Monday-Sunday).</p> <p>includes lesson count to show activity level.</p>

7.0	Teacher Analytics	Teacher Churn Analysis	<code>classes.teacher_id,</code> <code>classes.student_id,</code> <code>classes.is_present,</code> <code>users.full_name</code>	Shows teacher retention metrics (1) Total unique students taught (2) Students who didn't show up (3) Students who haven't returned in 30 days (churned). example: 'Taught 45 students, 5 absent, 8 churned'	Requires 3 parameters: <code>{{teacher_id}}</code> , <code>{{start_date}}</code> , <code>{{end_date}}</code> Churn period is hardcoded to 30 days students who haven't had a lesson in last 30 days are considered churned.
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Key Insights for Implementation

- **Next Lesson Logic:** The Join Lesson button should only transition from disabled to active within **5 minutes** of the time found in `classes.meeting_start`.
- **Learning Journey over Analytics:** Data from `level_assessments` and `lesson_feedbacks` should be presented as **positive progress** and confidence-building snapshots rather than deep analytic scores.
- **Practice Continuity:** Practice cards must connect directly to recent lessons to reinforce **learning continuity** and demonstrate lesson value to the parent.
- **Scope Limitation:** For Version 1 (V1), detailed progress history, deep CEFR breakdowns, and separate parent accounts are **explicitly excluded** from the homepage requirements.

Parameter Requirements

Most queries require the `{{student_id}}` parameter to be passed from the API. This ensures each student only sees their own data. The API must retrieve this from the authenticated user's session.

Hardcoded Values

Several queries have hardcoded time periods and thresholds:

- Join lesson button: 5 minutes before lesson (can be changed via INTERVAL)
- Cancellation policy: 24 hours before lesson (TIMESTAMPDIFF threshold)
- Weekly highlights: 7 days (DATE_SUB INTERVAL 7 DAY)
- Teacher churn: 30 days without lesson (INTERVAL -30 DAY)
- Vocabulary mastery cap: 200 words (can be adjusted)

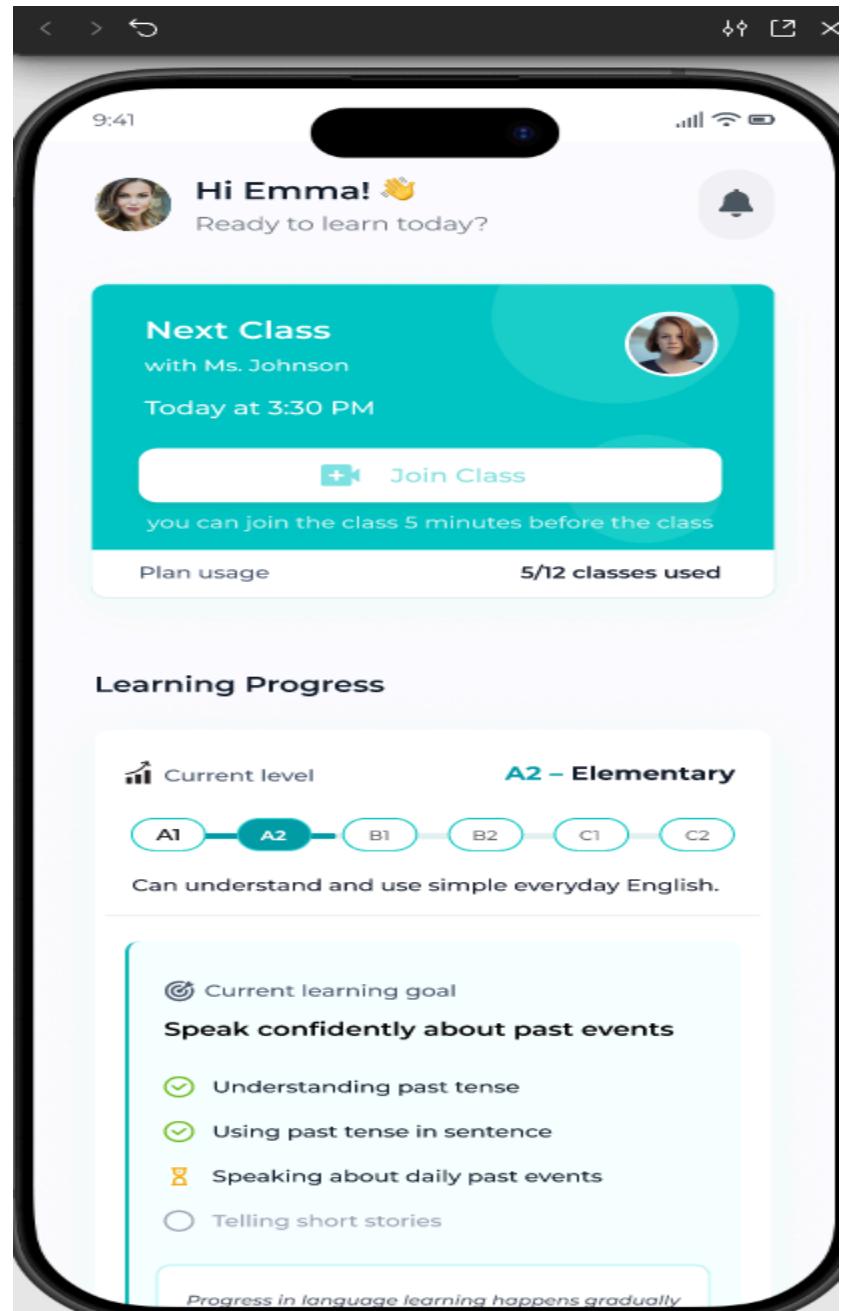
Data Quality

Many queries use COALESCE or NULL checks to handle missing data gracefully. If critical data is missing (e.g., class summaries, lesson feedback), some features may show default values or be hidden from the UI.

Performance Considerations

Most queries use proper indexing (student_id, class_id, meeting_start) and include LIMIT clauses to ensure fast performance. Queries returning multiple weeks of data (6.4) are limited to 12 weeks to prevent performance issues.

Example design not finalised though:



The screenshot shows a mobile application interface for language learning. At the top, there is a navigation bar with icons for back, forward, and close. Below the navigation bar, there is a section titled "Using past tense in sentence" with a green checkmark icon. This section includes a progress bar and a note: "Progress in language learning happens gradually — consistency matters more than speed." There is also a section titled "Upcoming Focus" with a pen icon and the text "Future Intention & ‘Going to’".

Skill Snapshot

Grammar

Foundation Completed 12%

Building better grammar using strong basics.

Vocabulary

Foundation Completed 12%

Learning new useful words every day.

The image shows a mobile application interface for language learning. At the top, there is a navigation bar with icons for back, forward, search, and close. Below the navigation bar, there are two sections labeled "Foundation Completed" with a progress bar at 12%.

Foundation Completed (Pink Progress Bar)
12%

Foundation Completed (Green Progress Bar)
12%

Speaking more clearly and correctly.
Speaking more confidently in daily conversations.

Info: Progress percentages reflect advancement within the current level, not overall English ability. Small changes over time are normal.

Weekly Highlights

+50 Words 3h Learning

Recent Practices

Fill in the Blanks Grammar Focus

Grammar Challenge Grammar Focus

Remaining Items to be Integrated

Index	Category	Requirement Detail	Source
1.0	Visual Indicators	Horizontal CEFR Scale: A visual scale (A1—A2—B1—B2—C1) where previous levels are shown as "completed" and higher levels are "muted."	
1.1		Skill Progress Layering: Skill cards must visually show two distinct layers: "Completed Foundations" (mastery from previous levels) and "Progress Within Current Level."	
1.2		Checkpoint Status: Clear visual distinction between "what's already been covered" and "what we're working on now" using text color or dividers.	
2.0	Specific Micro-copy	Emotional Reinforcement: Subtle lines such as "Progress builds step by step over time" and "Consistency matters more than speed."	

2.1		System Memory Message: The line "This learning path is continuously personalized based on your child's lessons" to reinforce that the system remembers the student.	
2.2		Global Skill Clarification: A note at the bottom or via an ⓘ icon explaining that small changes in percentages are normal and reflect advancement within a level, not overall ability.	
3.0	V2 UI Readiness	Interactive Skill Placeholders: In V1, skill cards should look clickable, though they function as visual placeholders for more detailed views in V2.	
3.1		Parent Insight Hint: A subtle hint at the bottom stating "More detailed progress insights for parents will be added over time" to manage expectations.	
4.0	Action Section logic	Empty State Message: A specific "All practice completed" message must appear if there are no open practice tasks.	
5.0	Design Constraints	Prohibited Elements: The homepage must explicitly avoid red/warning colors, charts, and excessive numbers to maintain a "calm" atmosphere.	

While the primary data points are mapped, the above-mentioned pedagogical logic must be applied at the application level, as it cannot be derived solely from database columns, Bangaru Abhi working on allocating proper tables and columns to them:

- Pedagogical Logic for Levels: The "Level Meaning" (e.g., "Can understand and use simple everyday English") is static text that must be mapped to the level found in student_progress.current_level rather than being stored as a dynamic string in the DB.
- System Confidence Logic: The strategic line "The more you learn with us, the more precisely the system adapts..." is a product-wide message used to create a "switching cost" and should be placed prominently regardless of specific data.
- Version Limitation: The specification explicitly states that Version 1 should not include a full progress history or deep CEFR breakdowns, ensuring the focus remains on the "confidence-building snapshot."

Future Metrics to show at homepage

Index	Metric Name	Live Database Mapping (Table.Column)	Perception / Student-Parent Impact
1.0	Learning Momentum (Consistency Streak)	<code>classes.meeting_start</code> (Logic: count consecutive weeks with at least one 'ended' class)	" Consistency over Speed. " Visually rewards the habit of showing up rather than just the score.

2.0	Vocabulary Strength (Retention Index)	<code>words.accuracy,</code> <code>words.practice_count</code>	"Moving words from head to heart." Shows that words aren't just "learned" but are becoming part of long-term memory via games.
3.0	Goal Confidence Score	Need to capture: Post-lesson student self-rating or teacher "Confidence" toggle in <code>lesson_feedbacks</code>	"Confidence is visible." A 1–5 star rating on how the student <i>feels</i> about the current goal (e.g., "Speaking about the past").
4.0	"System Brain" Growth (Memory Count)	<code>student_progress.vocabulary mastered,</code> <code>student_progress.grammar_concepts_learned</code>	"The system knows you." A counter showing "Total insights remembered about your child" to create a high switching cost.
5.0	Active Speaking Application	<code>class_summaries.engagement_level</code> & <code>transcriptions.word_count</code>	"From listening to leading." A visual showing the ratio of teacher-talk vs. student-talk, proving the child is the "star" of the lesson.
6.0	Mastery Milestones (Skills "Golded")	<code>topics_taught.verified_by_teacher</code>	"Pedagogical Wins." Instead of just checkpoints, show a "Mastery Medal" once a teacher verifies the topic is fully understood.

7.0	Skill Balance Radar	<pre>level_assessments.fluency_score, level_assessments.grammar_score, level_assessments.vocabulary_score</pre>	"Holistic Growth." A calm visual (like a radar or diamond) showing which skills are soaring and where focus is shifting next.
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Proposed Output / Perception for Students & Parents

- **Learning Momentum:** "You've learned for **4 weeks straight!** Consistency is your child's superpower".
- **Vocabulary Strength:** "15 words have moved to '**Permanent Memory**' this week after practice games".
- **Goal Confidence:** "Current Goal: Speak about the past. Confidence level: **Improving (4/5)**".
- **The "Brain" Metric:** "The system has analyzed **24 lessons** to create this week's personalized practice".

PM Insight on Implementation

- **Focus on the "Why":** For the student, these should feel like "Leveling up" (Gamification). For the parent, these should feel like "Evidence of ROI" (Return on Investment).
- **Avoid the "Dashboard Trap":** Even with these new data points, we must adhere to the design principle of **avoiding excessive numbers and red colors** to keep the experience calm and premium.
- **Retention Tracking:** By showing "Vocabulary Strength" (using the existing **words** table), we prove that the platform isn't just delivering content but is ensuring the child **remembers** it, which is the biggest pain point for parents in language learning.

Some useful data

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