

Programming for Kids
Architecture: Model View Controller

Front-End: React js
Back-End: Django
Database: Postgresql

User Side

API Endpoint	HTTP method	Request body	Request Response
api/signup	POST	<pre>{ "type" : 1, "username" : "user", "pass" : "user", "name" : "Shahrukh", "email" : "cseshahrukh@gmail.com" "class" : 7 }</pre>	HTTP/1.1 200 OK <pre>{ "token" : "Successful Sign Up" }</pre>
api/login	POST	<pre>{ "type" : 1, "username" : "user", "pass" : "user", }</pre>	Success Response: <ul style="list-style-type: none">• Status Code: 201 Created• Response Body: <pre>{ "id": 1, "username": "shahrukh", "email": "shahrukh@cse.com" }</pre>

			<p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 400 Bad Request • Response Body: <pre>{ "error": "Invalid user data." }</pre>
api/dashboard/newuser	GET		<ul style="list-style-type: none"> • Success Response: <ul style="list-style-type: none"> ◦ Status Code: 200 OK ◦ Response Body: <pre>{ "recommended_courses": [{ "id": 1, "title": "Introduction to Programming", "description": "A beginner-friendly course to learn the basics of programming.", "level": "Beginner" }, { "id": 2, "title": "Python for Kids", "description": "Learn Python programming in a fun and interactive way.", "level": "Beginner" }] }</pre>

			<pre> "level": "Intermediate" }, // Additional incomplete courses...] } ○ • Error Response: ○ Status Code: 404 Not Found ○ Response Body: { "error": "No incomplete courses found for the user." } </pre>
api/dashboard/completed	GET		<pre> • Success Response: ○ Status Code: 200 OK ○ Response Body: { "recommended_courses": [{ </pre>

			<pre>"id": 4, "title": "Web Development Fundamentals", "description": "Build a strong foundation in web development and learn HTML, CSS, and JavaScript.", "level": "Beginner" }, { "id": 5, "title": "Python Web Frameworks", "description": "Explore popular Python web frameworks like Django and Flask.", "level": "Intermediate" }, // Additional recommended courses...] } ○ ● Error Response:</pre>
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			<ul style="list-style-type: none"> ○ Status Code: 404 Not Found ○ Response Body: <pre>{ "error": "No recommended courses found for completed users." }</pre>
/api/curriculum	GET		<p>Success Response:</p> <ul style="list-style-type: none"> ● Status Code: 200 OK ● Response Body: <pre>{ "curriculum": [{ "id": 1, "title": "Introduction to Programming", "lessons": [{ "id": 1, "title": "Variables and Data Types", "description": "Learn about variables and different data types in programming." }, { "id": 2, "title": "Conditional Statements", "description": "Explore conditional statements</pre>

			<p>and decision-making in programming."</p> <pre> }, // Additional lessons...] }, // Additional curriculum sections...] } </pre> <p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre> { "error": "Curriculum not found." } </pre>
api/search-course	GET	<pre> { "keyword": "python" } </pre>	<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: <pre> { "courses": [{ "id": 1, "title": "Python Programming", </pre>

			<pre> "description": "Learn the fundamentals of Python programming language.", "level": "Beginner", "class": 6 }, { "id": 2, "title": "Python Data Structure", "description": "Introduction to Python Data Structure", "level": "Intermediate", "class": 8 }, // Additional courses...] }</pre> <p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre> { "error": "No courses found." }</pre>
api/courses/{course_id}/register	POST	<pre> { "course_id": "1002" }</pre>	<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK

			<ul style="list-style-type: none"> Response Body: <pre>{ "message": "Successfully registered for the course." }</pre> <p>Error Response:</p> <ul style="list-style-type: none"> Status Code: 400 Bad Request Response Body: <pre>{ "error": "Invalid course registration request." }</pre>
api/courses/{course_id}/progress	GET		<p>Success Response:</p> <ul style="list-style-type: none"> Status Code: 200 OK Response Body: <pre>{ "course_id": 1, "progress": 80, "completed_lessons": 8, "total_lessons": 10 }</pre>

			<p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre>{ "error": "Course progress not found." }</pre>
api/courses/{course_id}/lesson/{lesson_id}	GET		<p>Request Response: Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: <pre>{ "lesson": { "id": 1, "title": "Variables and Data Types", "description": "Learn about variables and different data types in programming.", "content": "<p>This lesson covers the basics of variables and data types in programming...</p>" } }</pre> <p>Error Response:</p>

			<ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre>{ "error": "Lesson not found." }</pre>
/api/courses/{course_id}/quiz/{lesson_id}	GET		<ul style="list-style-type: none"> • Success Response: <ul style="list-style-type: none"> ◦ Status Code: 200 OK ◦ Response Body: json <pre>{ "problems": [{ "id": 1, "title": "Sum of Two Numbers", "description": "Write a program to find the sum of two numbers.", "type": "coding", "difficulty": "Easy" }, { "id": 2, "title": "Data Types Quiz", "description": "Test your knowledge about programming data types.", "type": "mcq", "difficulty": "Medium", "options": [</pre>

			<pre> "A. Integer", "B. String", "C. Boolean", "D. Float"] }, // Additional problems...] } </pre> <ul style="list-style-type: none"> ○ ● Error Response: <ul style="list-style-type: none"> ○ Status Code: 404 Not Found ○ Response Body: <pre> json { "error": "No mcq problems found." } </pre> ●
/api/courses/{course_id}/quiz/{lesson_id}/submit	POST	<pre> { "answers": [{ "question_id": 1, "selected_option": "A" }, { "question_id": 2, "selected_option": "C" }] } </pre>	<p>Success Response:</p> <ul style="list-style-type: none"> ● Status Code: 200 OK ● Response Body: <pre> { "score": 80, "passed": true } </pre>

		<pre> }, // Additional answers...] } </pre>	<p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 400 Bad Request • Response Body: <pre> { "error": "Invalid quiz answers." } </pre>
/api/courses/{course_id}/problems	GET		<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: <pre> { "problems": [{ "id": 1, "title": "Sum of Two Numbers", "description": "Write a program to find the sum of two numbers.", "difficulty": "Easy" }, { "id": 2, "title": "Factorial Calculation", "description": "Write a program to calculate the factorial of a number.", "difficulty": "Medium" }] } </pre>

			<pre> },] } </pre> <p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre> { "error": "problems not found." } </pre>
/api/courses/{course_id}/problems/{problem_id}	GET		<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: <pre> { "problem_id": 1, "title": "Sum of Two Numbers", "description": "Write a program to find the sum of two numbers.", "difficulty": "Easy", "example_input": "Input: 3, 5", "example_output": "Output: 8" } </pre> <p>Error Response:</p>

			<ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre>{ "error": "Problem not found." }</pre>
/api/courses/{course_id}/problems/{problem_id}/submit	POST	<pre>{ "solution_code": "def sum_of_two_numbers(a, b):\n return a + b\n\nresult = sum_of_two_numbers(3, 5)\nprint(result)" }</pre>	<ul style="list-style-type: none"> • Success Response: <ul style="list-style-type: none"> ◦ Status Code: 200 OK ◦ Response Body: <pre>json { "message": "Solution submitted successfully.", "test cases passed": "8/10" }</pre> • Error Response: <ul style="list-style-type: none"> ◦ Status Code: 400 Bad Request ◦ Response Body: <pre>json { "error": "Invalid solution submission data." }</pre>

api/capstone/{project_id}	GET		<p>Success Response:</p> <ul style="list-style-type: none">• Status Code: 200 OK• Response Body: <pre>{ "project_id": 1, "title": "Build a Personal Portfolio Website", "description": "Create a personal portfolio website to showcase your programming projects and skills.", "steps": [{ "id": 1, "title": "Step 1: Planning and Wireframing", "description": "Plan the structure and design of your portfolio website and create wireframes.", "completed": true }, { "id": 2, "title": "Step 2: Design and Styling", "description": "Implement the visual design of your portfolio website using HTML and CSS.", "completed": false }, // Additional steps...] }</pre> <p>Error Response:</p>
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			<ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre>{ "error": "Capstone project not found." }</pre>
api/capstone/{project_id}/steps/{step_id}	GET		<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: <pre>{ "step_id": 1, "title": "Step 1: Planning and Wireframing", "description": "Plan the structure and design of your portfolio website and create wireframes.", "completed": true, "resources": [{ "id": 1, "title": "Wireframe Template",</pre>

			<pre>"url": "https://example.com/wireframe-template.pdf" }, { "id": 2, "title": "Portfolio Planning Guide", "url": "https://example.com/portfolio-planning-guide.pdf" }, // Additional resources...] } Error Response: • Status Code: 404 Not Found • Response Body: { "error": "Step details not found." }</pre>
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			}
api/capstone/{project_id}/submit	POST	{ "title": "My Capstone Project", "description": "This is my completed capstone project for the course.", "repository_url": "https://github.com/user/repo" }	Success Response: <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: { "message": "Capstone project submitted successfully." } Error Response: <ul style="list-style-type: none"> • Status Code: 400 Bad Request • Response Body: { "error": "Invalid capstone project submission data." }
/api/courses/{course_id}/discussion	GET		Success Response: <ul style="list-style-type: none"> • Status Code: 200 OK • Response Body: { "discussion_threads": [{ "id": 1, "title": "How to declare variables in Python?",

			<pre> "author": "john_doe", "created_at": "2022-12-15T10:30:00Z", "replies": [{ "id": 1, "author": "jane_smith", "content": "In Python, you can declare variables using the assignment operator (=). For example, `name = 'John'` assigns the value 'John' to the variable name.", "created_at": "2022-12-15T11:00:00Z" }, // Additional replies...] }, // Additional discussion threads...] } </pre> <p>Error Response:</p> <ul style="list-style-type: none"> • Status Code: 404 Not Found • Response Body: <pre> { "error": "Discussion threads not found." } </pre>
/api/courses/{course_id}/discussion	POST	<pre> { "title": "How to use loops in </pre>	<p>Success Response:</p> <ul style="list-style-type: none"> • Status Code: 201 Created

		JavaScript?", "content": "I'm having trouble understanding loops in JavaScript. Can someone provide examples?" }	<ul style="list-style-type: none"> Response Body: <pre>{ "message": "Discussion thread created successfully." }</pre> <p>Error Response:</p> <ul style="list-style-type: none"> Status Code: 400 Bad Request Response Body: <pre>{ "error": "Invalid discussion thread data." }</pre>
/api/courses/{course_id}/discussion/{thread_id}	GET		<p>Success Response:</p> <ul style="list-style-type: none"> Status Code: 200 OK Response Body: <pre>{ "thread_id": 1, "title": "How to declare variables in Python?", "author": "Shahrukh", "created_at": "2022-12-15T10:30:00Z", "content": "I'm new to Python and would like to</pre>

			<p>know how to declare variables. Can anyone help?",</p> <pre>"replies": [{ "id": 1, "author": "Prof. Tahmid Hasan", "content": "In Python, you can declare variables using the assignment operator (=). For example, `name = 'John'` assigns the value 'John' to the variable name.", "created_at": "2022-12-15T11:00:00Z" }, // Additional replies...]</pre> <p>}</p> <ul style="list-style-type: none">• Status Code: 404 Not Found• Response Body: <pre>{ "error": "Discussion thread not found." }</pre>
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			}
api/courses/{course_id}/discussion/{thread_id}/reply	POST	<pre>{ "content": "Here's an example of a loop in JavaScript: \n\nfor (let i = 0; i < 5; i++) {\n console.log(i);\n}" }</pre>	<ul style="list-style-type: none"> Success Response: <ul style="list-style-type: none"> Status Code: 200 OK Response Body: <pre>{ "message": "Reply posted successfully." }</pre> Error Response: <ul style="list-style-type: none"> Status Code: 400 Bad Request Response Body: <pre>{ "error": "Invalid reply data." }</pre>
api/student-performance	GET		HTTP/1.1 200 OK <pre>{ "student_id": "12345", "total_courses": 5, "total_points": 250, "achievements": [{ "title": "Bronze Star", "description": "Earned for completing 3 courses.", "points": 50 }, </pre>

			<pre> { "title": "Silver Star", "description": "Earned for completing 5 courses.", "points": 100 }, { "title": "Gold Star", "description": "Earned for achieving a total of 200 points.", "points": 200 }] } </pre>
api/recommended course	GET		<p>HTTP/1.1 200 OK</p> <pre> { "courses": [{ "course_id": "9876", "title": "Introduction to Java Programming", "level": "Beginner", "duration": "6 weeks", "instructor": "Md.Shahrukh Islam" }, { "course_id": "5432", "title": "Advanced Java Programming", "level": "Intermediate", </pre>

			<pre> "duration": "7 weeks", "instructor": "Sohidul Islam" },] } </pre>
api/archived/courses	GET		<pre> HTTP/1.1 200 OK { "courses": [{ "course_id": "67890", "title": "Introduction to C Programming", "completion_date": "2023-07-01" }, { "course_id": "54321", "title": "C Programming(part 2)", "completion_date": "2023-06-15" }] } </pre>

Teacher Side:

API Endpoint	HTTP method	Request body	Request Response
api/teacher/sign-up	POST	<pre>{ "type" : 2, "username" : "teacher", "pass" : "teacher", "name" : "Shahrukh", "email": "cseshahrukh@gmail.com" }</pre>	HTTP/1.1 200 OK <pre>{ "token" : "Successful Sign Up" }</pre>
api/teacher/login	POST	<pre>{ "type" : 2, "username" : "user", "pass" : "user", }</pre>	Success Response: <ul style="list-style-type: none">• Status Code: 201 Created• Response Body:<pre>{ "id": 1, "username": "shahrukh", "email": "shahrukh@cse.com" }</pre> Error Response: <ul style="list-style-type: none">• Status Code: 400 Bad Request• Response Body:<pre>{ "error": "Invalid user data." }</pre>

			}
api/teacher/courses	POST	{ "title": "Introduction to Programming", "description": "Learn the basics of programming", "duration": 6 weeks }	{ "course_id": "12345" }
api/teacher/courses/{course_id}/materials	POST	{ "title": "Programming Basics", "url": "https://example.com/programming-basics.pdf" }	{ "message": "Reading material uploaded successfully." }
api/teacher/courses/{course_id}/quiz-questions	POST	{ "question": "What is a variable?", "options": ["A. A constant value", "B. A placeholder for storing data", "C. A mathematical operation", "D. A conditional statement"], "correct_option": 1 }	{ "message": "Quiz question uploaded successfully." }
api/teacher/courses/{course_id}/quiz-questions/{question_id}	POST	POST	{

e_id}/programming-questions		/api/courses/12345/programming-questions { "question": "Write a program to find the factorial of a number.", "programming_language": "Python", "sample_input": "5", "sample_output": "120" }	"message": "Programming question uploaded successfully." }
api/teacher/courses/{course_id}/project-questions	POST	POST /api/courses/12345/project-questions { "question": "Create a simple calculator program using any programming language." }	{ "message": "Project question uploaded successfully." }
api/teacher/courses/{course_id}	PUT	{ "title": "Introduction to Programming (Updated)", "description": "Learn the basics of programming and algorithms", }	{ "message": "Course updated successfully." }

		<pre>"duration": 5 Weeks, "instructor_name": "John Doe" }</pre>	
<pre>api/teacher/courses/{course_id}/materials/{material_id}</pre>	PUT	<pre>{ "title": "Updated Programming Basics", "url": "https://example.com/updated-programming-basics.pdf" }</pre>	<pre>{ "message": "Reading material updated successfully." }</pre>
<pre>api/teacher/courses/{course_id}/quiz-questions/{question_id}</pre>	PUT	<pre>{ "question": "What is a variable? (Updated)", "options": ["A. A constant value", "B. A placeholder for storing data", "C. A mathematical operation", "D. A conditional statement"], "correct_option": 2 }</pre>	<pre>{ "message": "Quiz question updated successfully." }</pre>

api/teacher/courses/{course_id}/programming-questions/{question_id}	PUT	<pre>{ "question": "Write a program to find the factorial of a number. (Updated)", "programming_language": "Python", "sample_input": "6", "sample_output": "720" }</pre>	<pre>{ "message": "Programming question updated successfully." }</pre>
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Admin Side:

API Endpoint	HTTP method	Request body	Request Response
api/admin/login	POST	<pre>{ "type" : 3, "username" : "admin", "pass" : "admin", }</pre>	<p>HTTP/1.1 200 OK</p> <pre>{ "token" : "login successful" }</pre>

api/admin/approve-teacher	POST	<pre>{ "user_id": 12345 }</pre>	<ul style="list-style-type: none"> ● Success Response: <ul style="list-style-type: none"> ○ Status Code: 200 OK ○ Response Body: <pre>{ "message": "Teacher approved successfully." }</pre> ● Error Response: <ul style="list-style-type: none"> ○ Status Code: 400 Bad Request ○ Response Body: <pre>{ "error": "Invalid teacher approval request." }</pre>
api/admin/courses/{course_id}/verify	PUT	PUT /api/admin/courses/12345/verify	<pre>{ "message": "Course verified and approved successfully." }</pre>

