
CS6460: GIAPII-K12

Thomas Pizzone

Summer 2022

Guidelines for Individualized Academic Planning and ITS
Implementation for K-12 Students: a Resource Guide

Outline

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 - b. Wireframe
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 3. Prototype Evaluation
 - a. Qualitative Analysis - Survey
 - b. Predictive Evaluation - Cognitive Walkthrough
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 - a. DB Schema Brainstorming
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 5. Guidelines Status
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 - b. Revision 3 of Guidelines for Individualized Academic Planning
 6. ITS & Academic Planning Guide Repository
 - a. Back4App Hosting
 - b. New table for guides
 7. Web Development
 - a. New Layout
 - b. Deployment
 - c. Shortcomings
 8. Demo of System
-

[Link to Presentation Video](#)

Project Proposal

Prototype Proposal

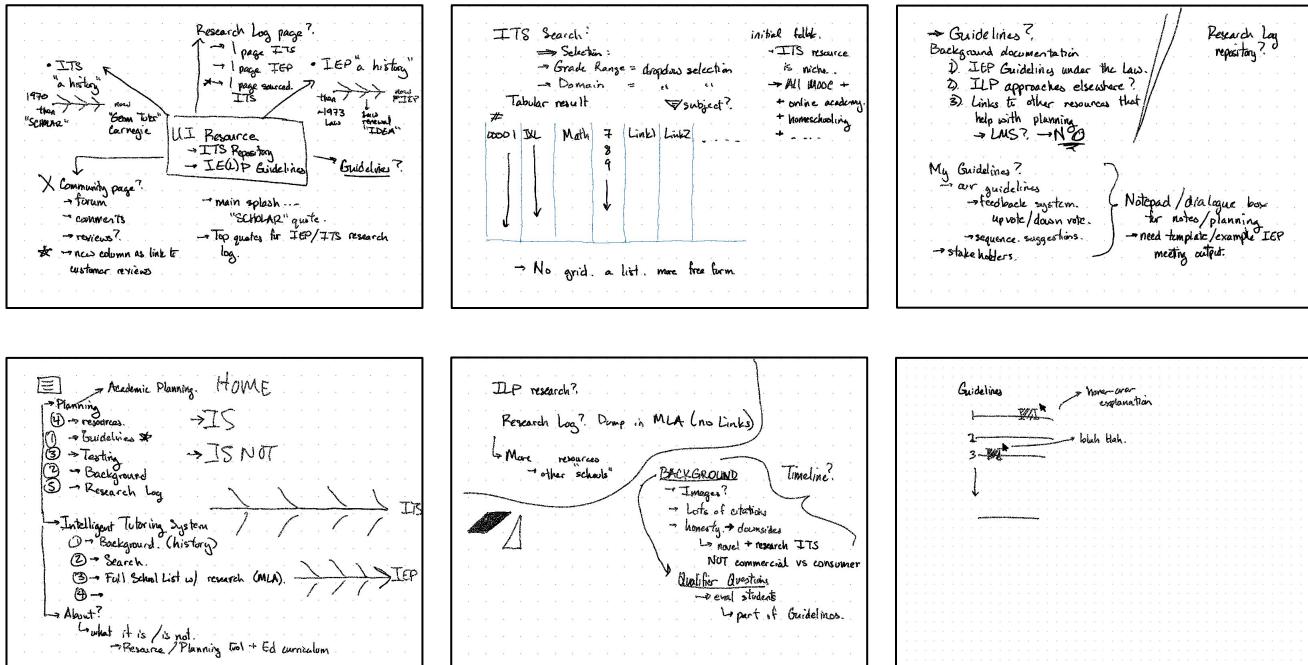
Teachers, parents, private tutors and students have a difficult task in defining coursework to suit all students. There are the pitfalls of subconscious biases, financial limitations, and innumerable texts and lesson plans from which to choose. As opposed to setting a standard curriculum for K-12 education, my goal is to assist in the development of a student's curriculum. I plan to offer a web-based interface. The interface will act as a resource to provide: (1) a background on IEP history and usage; (2) guidelines for planning a student's curriculum with ITSs implementation; (3) a repository and search tool for commercially available ITS.

-

Prototype

Prototype Brainstorming

- Brainstorming Sessions
 - 2 session
 - Focus
 - ITS Repository
 - Menu Sidebar
 - Page breakdown



Prototype I: Wireframe

- Wireframe Prototype
 - Working draft of ITS repository search tool
 - Shared to “Peer Survey” for feedback with friends, family, and classmates.

Guidelines for Individualized Academic Curriculum and ITS Implementation for K-12 Students: a Resource Guide



ITS search tool

Search Criterion: -- Subject(s)/Domain -- ▼ -- Grade Range -- ▼ -- Tutor/Instruction Type -- ▼

Subject	Grade	Tutor/Instruction Type
Math	Pre-K	Core Curriculum
ELA	Elementary	Complimentary
Science	Middle	Catch-Up
History	High	
English		

School	Subject	Grade	Link	Add to
1 Carnegie Learning	Math (Algebra)	Grade: 9	https://www.carnegielearning.com/solutions/math	
2 School 2	ELA	Grade: 7	this/link/will/not/work">https://school2>this/link/will/not/work	
3 School 3	ELA	Grade: 7	this/link/will/not/work">https://school3>this/link/will/not/work	
4 IXL	Science (Chemistry)	Grade: 12	https://www.ixl.com/science	
5 IXL	Social Studies	Grade: 2	https://www.ixl.com/social-studies	
6 School 8	Social Studies	Grade: 5	this/link/will/not/work">https://school8>this/link/will/not/work	

ITS Implementation Resource Page
CS6460: GPACII-K12 – Wireframe Prototype

< 1 2 3 4 >

Prototype II: Card

- Card Prototype
 - Working draft of the menu sidebar functionality
 - 2 Scenarios
 - (1) Viewing all subpages of website from homepage.
 - (2) Navigate from Guidelines to subpage for assessment tools.

Guidelines for Individualized Academic Curriculum and ITS Implementation for K-12 Students: a Resource Guide

Guidelines for Individualized Academic Curriculum

Requirement Description

(a) General

Below is a proposed set of guidelines for parents, teachers, and tutors to use in the creation of a student's personalized academic curriculum (or individualized learning plan, or individualized curriculum outline, or personalized academic plan)

- A statement of the child's present levels of academic achievement and functional performance, including -
- A statement of measurable annual goals, including academic and functional goals designed to -
- Meet the child's needs to enable the child to be involved in and make progress in the general education curriculum; and
- How the child's progress toward meeting the annual goals described in paragraph (2) of this section will be measured, and when periodic reports on the progress of the child are to be provided to the parents or guardians on the progress of the child toward meeting the annual goals (such as through the use of quarterly or other periodic reports, concurrent with the issuance of report cards); the projected date for the beginning of the services and modifications described in paragraph (a)(4) of this section, and the anticipated frequency, location, and duration of those services
- A statement of the education and related services, including supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child, or on appropriate measurable postsecondary goals based upon age-appropriate transition assessments related to training, education, employment, and, where appropriate, independent living skills; and
- To advance appropriately toward attaining the annual goals;
- To be involved in and make progress in the general education curriculum in accordance with paragraph (a)(1) of this section, and to participate in extracurricular and other nonacademic activities; and
- To be educated and participate with other children in the activities described in this section;
- A statement to measure the academic achievement and functional performance of the child on State and districtwide assessments; and
- The particular alternate assessment selected is appropriate for the child; and
- The projected date for the beginning of the services and modifications described in paragraph (a)(4) of this section, and the anticipated frequency, location, and duration of those services

(b) Transition services

Beginning no later than the first IEP (LP/PAF/IAP/IAC/ICO) to be in effect when the child turns 16, or younger if determined appropriate by the PAC (LP/PAF/IAP/IAC/ICO) Team.

(1) Appropriate measurable postsecondary goals based upon age-appropriate transition assessments related to training, education, employment, and, where appropriate, independent living skills; and

(2) The transition services (including courses of study) needed to assist the child in reaching those goals.

C56460_Summer2022_TBPZone

Individualized Curriculum Guidelines Page
C56460_GIACII-K12 - Wireframe Prototype

Guidelines for Individualized Academic Curriculum and ITS Implementation for K-12 Students: a Resource Guide

Guidelines for Individualized Academic Curriculum

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- A statement of the education and related services, including supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child, or on behalf of the child, and a statement of the program modifications or supports for school personnel that will be provided to enable the child
- To advance appropriately toward attaining the annual goals;
- To be involved in and make progress in the general education curriculum in accordance with paragraph (a)(1) of this section, and to participate in extracurricular and other nonacademic activities; and
- To be educated and participate with other children in the activities described in this section;
- A statement to measure the academic achievement and functional performance of the child on State and districtwide assessments; and
- The particular alternate assessment selected is appropriate for the child; and
- The projected date for the beginning of the services and modifications described in paragraph (a)(4) of this section, and the anticipated frequency, location, and duration of those services and modifications

(b) Transition services

Beginning no later than the first IEP (LP/PAF/IAP/IAC/ICO) to be in effect when the child turns 16, or younger if determined appropriate by the PAC (LP/PAF/IAP/IAC/ICO) Team, and update annually, thereafter, the IEP must include -

(1) Appropriate measurable postsecondary goals based upon age-appropriate transition assessments related to training, education, employment, and, where appropriate, independent living skills; and

(2) The transition services (including courses of study) needed to assist the child in reaching those goals.

C56460_Summer2022_TBPZone

Individualized Curriculum Guidelines Page
C56460_GIACII-K12 - Wireframe Prototype

CS6460: Educational Technology
Guidelines for Individualized Academic Curriculum and ITS Implementation for K-12 Students: a Resource Guide

Project Abstract

Intelligent Tutoring Systems (ITS) and Individualized Education Plans (IEPs) have existed for decades in education. Researchers, through meta-analyses, have demonstrated the efficacy of ITS(c), or the effectiveness of field of study (technical and vocational) interventions in K-12 education (Mai et al., 2014). Modern ITS can evaluate and identify a student's current state and metacognitive skills, and provide individualized instruction (Gagné, 2009). In 1973, IEPs were by law implemented under the Individuals with Disabilities Education Act (IDEA). An IEP is constructed annually by educators, administrators, and parents of special education students to define specific academic and functional goals per student. Building on existing research and education practice, this site offers a resource for any individual constructing a curriculum for a K-12 student, looking to implement ITS(c) within a field of study. This site is built for parents / users / teachers and students to provide: (1) a background on IEP history and usage, (2) guidelines for planning a student's curriculum with IEP(c) implemented, (3) a repository and search tool for commercially available ITS.

Site Overview

When building an individualized curriculum, use the guidelines as a reference.

Subpages included:

- ❖ Guidelines
- ❖ Background Information
- ❖ Resources/Aessment
- ❖ Research Log

Use the ITS Search page to find a solution.

Subpages included:

- ❖ Guidelines
- ❖ Background Information
- ❖ Resources/Aessment
- ❖ Research Log

Home
C56460_GIACII-K12 - Card Prototype

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Home
C56460_GIACII-K12 - Card Prototype

Prototype Evaluation

Qualitative Evaluation

- For the wireframe prototype, a qualitative evaluation will be completed via survey.
 - 21 users have responded to the survey.
 - <http://peersurvey.cc.gatech.edu/s/35e93d1da6824a56ae0d34eef63ba6b>

SURVEYS

Survey Questions

Wireframe Prototype - ITS Implementation Resource Page

Search page for consumer-available intelligent tutoring systems. One aspect of a project titled: "Guidelines for Individualized Academic Curriculum and ITS Implementation for K-12 Students: a Resource Guide". Please skip if question includes '(answer not required)'.

* Required

Type: Short Answer

Project Proposal
Thomas Fizzone
tfizzone@gatech.edu

Abstract – Intelligent Tutoring Systems (ITS) and Individualized Education Plans (IEPs) have existed for decades in education. Researchers, through meta-analyses, have demonstrated the efficacy of ITS(s), irrespective of field of study (technical and non-technical subjects) in K-12 education (Ma et al. 2014). Modern ITS are capable of evaluating and identifying a student's emotional state and meta-cognitive skills, such as self-monitoring, self-explanation, etc (Comati, 2009). Since the 1970s, IEPs are, by law, implemented for students which are covered by IDEA (Individuals with Disabilities Education Act). An IEP is constructed annually by educators, administrators, and parents of special education students to define specific academic and functional goals per student. Building on existing research and education practice, this project will deliver a resource for any individual constructing a curriculum for a K-12 student, looking to implement ITS(s) within a field of study. The resource will be a web-based interface (website) for parents/utors/teachers and students to provide: (1) a background on IEP history and usage; (2) guidelines for planning a student's curriculum with ITS(s) implemented; (3) a repository and search tool for commercially available ITS.

Project Abstract (answer not required)

Short answer text

Type: Agreement (5.1)

Please indicate your level of agreement with the statement: "I und

Strongly Agree
 Agree
 Neutral
 Disagree
 Strongly Disagree

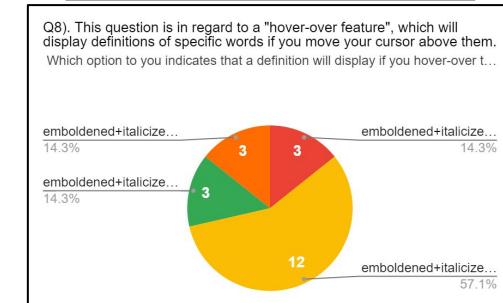
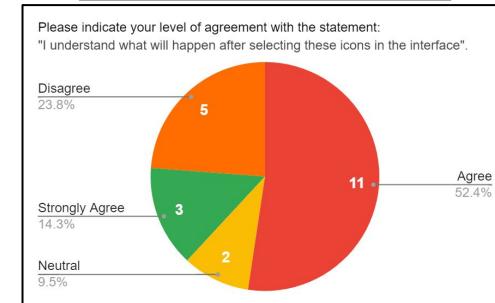
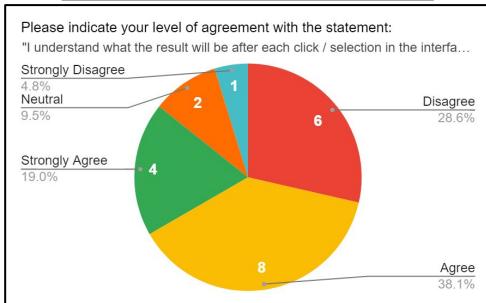
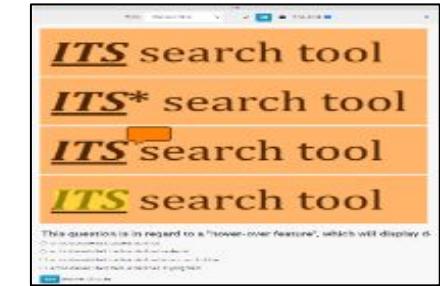
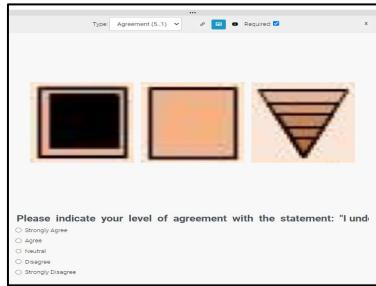
Type: Agreement (5.1)

Please Indicate your level of agreement with the statement: "I und

Strongly Agree
 Agree
 Neutral
 Disagree
 Strongly Disagree

Prototype Evaluation

- Wireframe Prototype Reference
 - The results indicate that users were familiar with the selection, filter, menu, and home-page icons. However, a significant minority of the responses were not confident in the intended meaning of the icons
 - With respect to the planned “hover-over” definition feature, a majority of responders chose a display option to express when the interface will provide a definition for education technology jargon.



Predictive Evaluation

- Cognitive walkthroughs for both the card and wireframe prototypes was completed
 - 3 questions were asked for each scenario
 - Will the user know what to do?
 - Will the user see how to do it?
 - Will the user understand the feedback they get?

Cognitive Walkthrough

3 Questions for Cognitive Walkthrough

1). Will the user know what to do?
2). Will the user see how to do it?
3). Will the user understand the feedback they get?

1) Card Prototype:

- i) Scenario 1 – **Viewing all subpages of website from homepage.**
 - (a) Will the user know what to do?
 - 1. The “hamburger” or menu button is a well-documented user-interface device.
 - 2. There could be additional coloring / shading to draw the user’s eye toward the menu button.
 - (b) Will the user see how to do it?
 - 1. Hamburger button is a consistent principle throughout interface design.
 - (c) Will the user understand the feedback they get?
 - 1. An expanding side panel is *consistency*
- ii) Scenario 2 – **Navigate from Guidelines to subpage for assessment tools.**
 - (a) Will the user know what to do?
 - 1. Unless explicitly noted or there are directional cues for terms like “assessment”, it is less obvious that the assessments links page is a resource to use within the context of specific actions within the guidelines.
 - (b) Will the user see how to do it?
 - 1. *Repeat of Scenario 1(b).
 - (c) Will the user understand the feedback they get?
 - 1. *Repeat of Scenario 1(c).

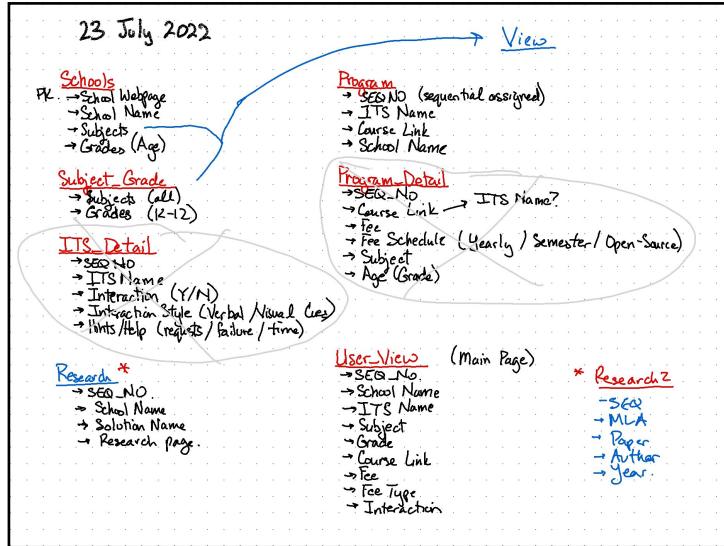
2) Wireframe Prototype:

- i) Scenario 1 – **Choosing a solution for reading for a student 12 years of age or older.**
 - (a) Will the user know what to do?
 - 1. The filter / search element is obvious, but the full list should be on display prior to selection.
 - (b) Will the user see how to do it?
 - 1. Need to make sure the filter results include all possible subjects/domains from the dB|
 - 2. By default, all boxes should be checked.
 - (c) Will the user understand the feedback they get?
 - 1. The list will update, but there should be an action button to make it clearer that the filter has been activated.

ITS Repository

DB Schema

- The initial ideas for tables/columns and views was created from the results of brainstorming sessions for the prototypes.
- From the initial db schema, google sheets was used to compile a rough draft of the tables / their data.



Project Repository_TBPizzone_Summer2022_v3

File Edit View Insert Format Data Tools Extensions Help Access

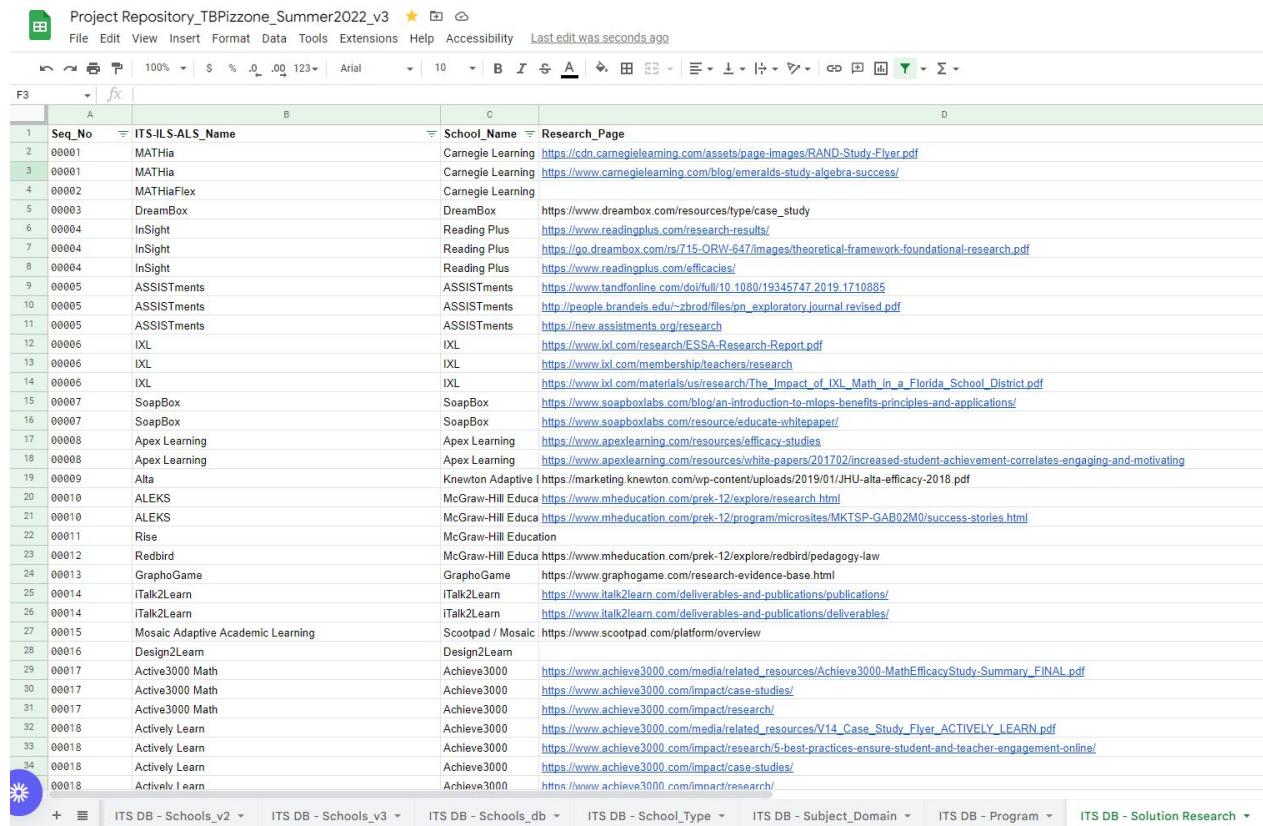
D9

Seq_No	Course	Domain
1		
2	00001	Math
3	00002	Algebra 1
4	00003	Geometry
5	00004	Algebra 2
6	00005	Precalculus
7	00006	Calculus
8	00007	Language Arts
9	00008	ELA
10	00009	Reading
11	00010	Reading
12	00011	Language Arts
13	00012	Science
14	00013	Earth Science
15	00014	Biology
16	00015	Chemistry
17	00016	Physics
18	00017	Social Studies
19	00018	World History
20	00019	European History
21	00020	American History
22	00021	American History
23		
24		Term Dictionary
25		ITS DB - Schools
26		ITS DB - Schools_V2
27		ITS DB - Schools_V3
28		ITS DB - Schools_db
29		ITS DB - School_Type
30		ITS DB - Subject_Domain
31		ITS DB - Program
32		
33		
34		
35		

+ ITS DB - School_Type ITS DB - Subject_Domain

Research

- 156 unique School-Solution-Grade-Subjects have been included so far in the repository.
- Also, new tables were created as a result of searching which will be useful to future users.
 - One example is the table of all research completed to evaluate the programs.



The screenshot shows a Microsoft Excel spreadsheet with the title "Project Repository_TBPizzone_Summer2022_v3". The table has four columns: Seq_No, ITS-ILS-ALS_Name, School_Name, and Research_Page. The data includes various educational solutions like Carnegie Learning, DreamBox, Reading Plus, ASSISTments, IXL, SoapBox, Apex Learning, Knewton Adaptive, ALEKS, Rise, Redbird, GraphoGame, iTalk2Learn, Mosaic Adaptive Academic Learning, Design2Learn, Active3000 Math, Achieve3000, and Actively Learn, along with their respective URLs and descriptions.

F3	A	B	C	D
Seq_No	ITS-ILS-ALS_Name	School_Name	Research_Page	
1	MATHia	Carnegie Learning	https://cdn.carnegylearning.com/assets/page-images/RAND-Study-Flyer.pdf	
2	MATHia	Carnegie Learning	https://www.carnegylearning.com/blog/emeralds-study-algebra-success/	
3	MATHiaFlex	Carnegie Learning		
4	DreamBox	DreamBox	https://www.dreambox.com/resources/type/case_study	
5	InSight	Reading Plus	https://www.readingplus.com/research-results/	
6	InSight	Reading Plus	https://go.dreambox.com/rs/715-ORW-647/images/theoretical-framework-foundational-research.pdf	
7	InSight	Reading Plus	https://www.readingplus.com/efficacy/	
8	ASSISTments	ASSISTments	https://www.tandfonline.com/doi/full/10.1080/19345747.2019.1710885	
9	ASSISTments	ASSISTments	http://people.brandeis.edu/~zbrod/files/pn_exploratory_journal_revised.pdf	
10	ASSISTments	ASSISTments	https://new.assistments.org/research	
11	IXL	IXL	https://www.ixl.com/research/ESSA-Research-Report.pdf	
12	IXL	IXL	https://www.ixl.com/membership/teachers/research	
13	IXL	IXL	https://www.ixl.com/materials/us/research/The_Impact_of_IXL_Math_in_a_Florida_School_District.pdf	
14	SoapBox	SoapBox	https://www.soapboxlabs.com/blog/an-introduction-to-mlops-benefits-principles-and-applications/	
15	SoapBox	SoapBox	https://www.soapboxlabs.com/resource/educate-whitepaper/	
16	Apex Learning	Apex Learning	https://www.apexlearning.com/resources/efficacy-studies	
17	Apex Learning	Apex Learning	https://www.apexlearning.com/resources/white-papers/201702/increased-student-achievement-correlates-engaging-and-motivating	
18	Rise	Knewton Adaptive	https://marketing.knewton.com/wp-content/uploads/2019/1/JHU-alta-efficacy-2018.pdf	
19	Alta	McGraw-Hill Educa	https://www.mheducation.com/prek-12/explore/research.html	
20	ALEKS	McGraw-Hill Educa	https://www.mheducation.com/prek-12/program/microsites/MKTSP-GAB02M0/success-stories.html	
21	ALEKS	McGraw-Hill Education		
22	Rise	McGraw-Hill Education		
23	Redbird	McGraw-Hill Educa	https://www.mheducation.com/prek-12/explore/redbir/pedagogy-law	
24	GraphoGame	GraphoGame	https://www.graphogame.com/research-evidence-base.html	
25	iTalk2Learn	iTalk2Learn	https://www.italk2learn.com/deliverables-and-publications/publications/	
26	iTalk2Learn	iTalk2Learn	https://www.italk2learn.com/deliverables-and-publications/deliverables/	
27	Mosaic Adaptive Academic Learning	Scootpad / Mosaic	https://www.scootpad.com/platform/overview	
28	Design2Learn	Design2Learn		
29	Active3000 Math	Achieve3000	https://www.achieve3000.com/media/related_resources/Achieve3000-MathEfficacyStudy-Summary_FINAL.pdf	
30	Active3000 Math	Achieve3000	https://www.achieve3000.com/impact/case-studies/	
31	Active3000 Math	Achieve3000	https://www.achieve3000.com/impact/research/	
32	Actively Learn	Achieve3000	https://www.achieve3000.com/media/related_resources/V14_Case_Study_Flyer_ACTIVELY_LEARN.pdf	
33	Actively Learn	Achieve3000	https://www.achieve3000.com/media/research/5-best-practices-ensure-student-and-teacher-engagement-online/	
34	Actively Learn	Achieve3000	https://www.achieve3000.com/impact/case-studies/	
35	Actively Learn	Achieve3000	https://www.achieve3000.com/impact/research/	

DB Construction

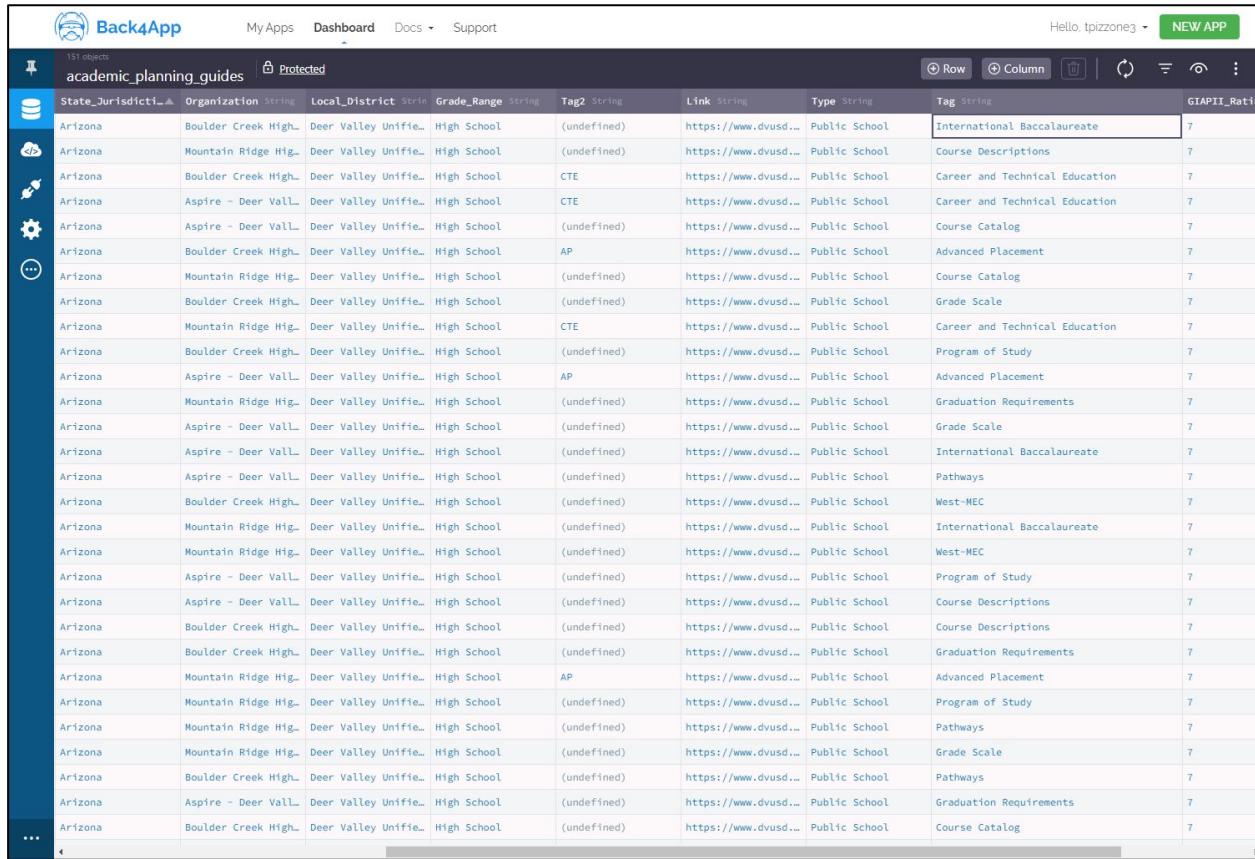
- The initial dB was constructed via python in SQLite.
 - 5 tables are included so far
 - An additional table to add is for the entire research log from the first 4 weeks of this class. With all relevant published works included in the final paper, to be added as well.

Table:	school_webpage	school_name	school_type	domain	grade_min	grade_max	solution	solution_type
122	esparklearning.com/activities	eSparks Learning	elementary	Math	K	5	eSpark	ALP
123	esparklearning.com/activities	eSparks Learning	middle	Math	6	8	eSpark	ALP
124	https://www.lexialearning.com/core5	Lexia	PreK	Reading	PreK	PreK	Core5	ALP
125	https://www.lexialearning.com/core5	Lexia	elementary	Reading	PreK	5	Core5	ALP
126	https://www.lexialearning.com/powerup	Lexia	middle	Reading	6	8	PowerUp Literacy	ALP
127	https://www.lexialearning.com/powerup	Lexia	high	Reading	9	12	PowerUp Literacy	ALP
128	https://www.lexialearning.com/lexia-english	Lexia	elementary	English Development	K	5	English Language Development™	ALP
129	https://www.lexialearning.com/lexia-english	Lexia	middle	English Development	6	6	English Language Development™	ALP
130	https://www.lexialearning.com/rapid	Lexia	elementary	Reading/Language	K	5	Rapid Assessment	ALP
131	https://www.lexialearning.com/rapid	Lexia	middle	Reading/Language	6	8	Rapid Assessment	ALP
132	https://www.lexialearning.com/rapid	Lexia	high	Reading/Language	9	12	Rapid Assessment	ALP
133	https://www.mobymax.com/curriculum/social-...	MobyMax	elementary	Social Studies	K	5	ToughCurriculum	ALP
134	https://www.mobymax.com/curriculum/social-...	MobyMax	middle	Social Studies	6	8	ToughCurriculum	ALP
135	https://www.mobymax.com/curriculum/science	MobyMax	elementary	Science	K	5	ToughCurriculum	ALP
136	https://www.mobymax.com/curriculum/science	MobyMax	middle	Science	6	8	ToughCurriculum	ALP
137	https://www.mobymax.com/curriculum/math	MobyMax	elementary	Math	K	5	ToughCurriculum	ALP
138	https://www.mobymax.com/curriculum/math	MobyMax	middle	Math	6	8	ToughCurriculum	ALP
139	https://www.mobymax.com/curriculum/early-...	MobyMax	elementary	Reading	K	5	ToughCurriculum	ALP
140	https://www.mobymax.com/curriculum/early-...	MobyMax	middle	Reading	6	8	ToughCurriculum	ALP
141	https://www.mobymax.com/curriculum/...	MobyMax	elementary	Reading	K	5	ToughCurriculum	ALP
142	https://www.mobymax.com/curriculum/...	MobyMax	middle	Reading	6	8	ToughCurriculum	ALP
143	https://www.mobymax.com/curriculum/language-...	MobyMax	elementary	ELA	K	5	ToughCurriculum	ALP
144	https://www.mobymax.com/curriculum/language-...	MobyMax	middle	ELA	6	8	ToughCurriculum	ALP
145	https://www.sclearn.com/english-language-...	Carnegie Learning	elementary	Reading/ELA	K	5	FastForWord	ITS
146	https://www.sclearn.com/english-language-...	Carnegie Learning	middle	Reading/ELA	6	8	FastForWord	ITS
147	https://www.sclearn.com/english-language-...	Carnegie Learning	high	Reading/ELA	K	12	FastForWord	ITS
148	https://www.sclearn.com/reading-assistant-plus/	Carnegie Learning	elementary	Reading	K	5	FastForWord-Reading Assistant Plus	ITS
149	https://www.sclearn.com/reading-assistant-plus/	Carnegie Learning	middle	Reading	6	8	FastForWord-Reading Assistant Plus	ITS
150	https://www.sclearn.com/reading-assistant-plus/	Carnegie Learning	high	Reading	K	12	FastForWord-Reading Assistant Plus	ITS
151	sclearn.com/secondary-program/	Carnegie Learning	middle	Reading	6	8	FastForWord	ITS
152	sclearn.com/secondary-program/	Carnegie Learning	high	Reading	6	12	FastForWord	ITS
153	https://www.sclearn.com/elementary-program/	Carnegie Learning	elementary	Reading	K	5	FastForWord	ITS
154	https://www.thinkcerca.com/solutions	ThinkCERCA	elementary	Reading/Writing/ELA	3	5	CERCA	ALP
155	https://www.thinkcerala.com/solutions	ThinkCERCA	middle	Reading/Writing/ELA	3	8	CERCA	ALP
156	https://www.thinkcerala.com/solutions	ThinkCERCA	high	Reading/Writing/ELA	3	12	CERCA	ALP

Guidelines Status

Guidelines Status: References

- To aid users in construction of an individualized academic plan, a repository of published academic planning guides was added to the project.
 - Public, private, charter school guides are included.
 - Links to the guides as well as characteristics and a rating are included for all guides.



The screenshot shows a Back4App dashboard with a table titled "academic_planning_guides". The table has 151 objects and includes columns for State_Jurisdiction, Organization, Local_District, Grade_Range, Tag1, Link, Type, Tag, and GIAPII_Rating. The data includes various school names like Boulder Creek High, Mountain Ridge High, and Aspire - Deer Valley, across different districts and grade ranges. It also includes rows for International Baccalaureate, Course Descriptions, Career and Technical Education, Course Catalog, Advanced Placement, Course Catalog, Grade Scale, Career and Technical Education, Program of Study, Advanced Placement, Graduation Requirements, Grade Scale, International Baccalaureate, Pathways, West-MEC, International Baccalaureate, West-MEC, Program of Study, Course Descriptions, Course Descriptions, Graduation Requirements, Advanced Placement, Program of Study, Pathways, Grade Scale, Pathways, and Graduation Requirements. A green button at the top right says "NEW APP".

State_Jurisdiction	Organization	Local_District	Grade_Range	Tag1	Link	Type	Tag	GIAPII_Rating
Arizona	Boulder Creek High	Deer Valley Unified	High School	(undefined)	https://www.dvusd...	Public School	International Baccalaureate	7
Arizona	Mountain Ridge High	Deer Valley Unified	High School	(undefined)	https://www.dvusd...	Public School	Course Descriptions	7
Arizona	Boulder Creek High	Deer Valley Unified	High School	CTE	https://www.dvusd...	Public School	Career and Technical Education	7
Arizona	Aspire - Deer Vall	Deer Valley Unified	High School	CTE	https://www.dvusd...	Public School	Career and Technical Education	7
Arizona	Aspire - Deer Vall	Deer Valley Unified	High School	(undefined)	https://www.dvusd...	Public School	Course Catalog	7
Arizona	Boulder Creek High	Deer Valley Unified	High School	AP	https://www.dvusd...	Public School	Advanced Placement	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Course Catalog	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Grade Scale	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	CTE	https://www.dvusd...	Public School	Career and Technical Education	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Program of Study	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	AP	https://www.dvusd...	Public School	Advanced Placement	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Graduation Requirements	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Grade Scale	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	International Baccalaureate	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Pathways	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	West-MEC	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	International Baccalaureate	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	West-MEC	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Program of Study	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Course Descriptions	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Course Descriptions	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Graduation Requirements	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	AP	https://www.dvusd...	Public School	Advanced Placement	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Program of Study	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Pathways	7
Arizona	Mountain Ridge Hig	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Grade Scale	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Pathways	7
Arizona	Aspire - Deer Vall	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Graduation Requirements	7
Arizona	Boulder Creek High	Deer Valley Unifie	High School	(undefined)	https://www.dvusd...	Public School	Course Catalog	7

Guidelines Status: Revision 3

- The latest revision of the Guidelines for Individualized Academic Planning are published here:
 - <https://docs.google.com/spreadsheets/d/e/2PACX-1vTGZWJHgH1oGQKJbgBQua1Bvc1EwuKgHSIDa01bIJLruw2ojvMKw8I0B9C6vdxfLXI0t4rPkoVWTL7n/pubhtml?gid=1959883659&single=true>
 - The guidelines have 8 sections, to be followed in sequence.
 - Also included is a prescribed responsible party for each section.

Requirement	Description	Responsible Party / To be completed by	Reference cite / document
(a) General	Below is a proposed set of guidelines for parents, teachers, and tutors to use in the creation of a students' individualized academic plan.		
	1). Identify the stakeholders to be involved in designing the student's academic plan, i.e. the members of the IAP team.	Parent or legal guardian	
	1.1.) Parents or a legal guardian determine to what level a teacher, tutor, or administrator will be part of the IAP team.		
	1.2.) The student should be an active member of the IAP team, beginning no later than the first IAP to be in effect when the child turns 16, or younger if determined appropriate by the IAP Team.		
	2). Construct a statement of the student's present levels of academic achievement, including –	IAP Team	
	2.1.) when available, refer to student's prior evaluations or assessment exams.		
	2.2.) the student's strengths.		
	2.3.) the student's needs.		
	2.4.) concerns over the student's academic and developmental growth.		
	3). Consult your state's requirements for K-12 education.	IAP Team	
	3.1.) Refer to Resource from HSLDA (Home School Legal Defense Association) for state-by-state detail of K-12 education requirements		https://hslda.org/
	3.2.) NY State Reference - Procedures to assist in meeting Education Law sections: 3204(2) + 3210(2)(d) + 3212(2) + 3205		http://www.nysed.gov
	3.2.1.) Notice of intention to instruct at home.		
	3.2.2.) Procedures for development and review of an individualized home instruction plan (IHIP).		
	3.2.3.) Content of individualized home instruction plan (IHIP). Each child's IHIP shall contain:		
	3.2.3.1.) Required courses.		
	3.2.3.2.) Attendance requirements.		
	3.2.3.3.) Quarterly reports.		
	3.2.3.3.) Probation.		
	4). Construct a statement of the student's goals for the year. Include a timeline for evaluation of progress toward goal and evaluation methodology;	IAP Team	https://ed.gov/sage https://ed.gov/sage https://instrct.industry
	4.1.) Sample goal: identify a scholastic level for all subjects (e.g. the student will read at 6th grade level by end of term).		
	4.2.) Determine the approach to be followed to evaluate the student's progress toward their goal.		
	4.2.1.) Frequency of evaluation. (monthly, quarterly, yearly, etc.)		
	4.2.1.1.) Provide detail for when periodic reports on the progress the student is making toward meeting the goals (such as through the use of quarterly or other periodic reports, concurrent with the issuance of report cards) will be provided.		
	4.2.2.) Evaluation medium:		
	4.2.2.1.) Assessment Tests (NWEA, MAP, MetaMetrics)		
	4.2.2.2.) Instructor Provided testing.		
	5). Construct a statement with the scope and sequence of the education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the student.	IAP Team	https://www.worldcat.org
	5.1.) HSLDA provides a support page to understand what "scope" and "sequence" includes.		https://hslda.org/
	5.2.) Utilize the following resources for creating a curriculum for the student, including -		
	5.2.1.) The ITS (intelligent tutoring system) search tool offers names and details for commercially available solutions. Details included in the search tools for each PTS are:		
	5.2.1.1.) Grade Range / School Type (Elementary, Middle, High School)		
	5.2.1.2.) Subject or Domain (e.g. ELA, Math [algebra, geometry, precalculus, etc.], Science [physics, chemistry, etc.])		
	5.2.1.3.) Education Resource Type [Core complete education service; Complementary: to be used in conjunction with a core curriculum to benefit the student's education]		
	5.2.2.) The Academic Planning Guide search page includes links to public, private, and charter schools' education planning documents & webpages. This search page is filterable by -		
	5.2.2.1.) State jurisdiction		
	5.2.2.2.) Grade Range / School Type (Elementary, Middle, High School)		
	5.2.2.3.) GIAP! Scores/Rating (1-10 rating for planning documents/webpages' quality as a resource for users of this resource).		
	5.3.) Lesson Plan Advisor.		
	5.2.1.) Define objectives for each lesson.		
	5.2.2.) Create an outline that includes any materials that you may need.		
	5.2.3.) Include a timeline for your lessons.		
	5.2.4.) Add lesson descriptions on the topics that are going to be covered.		
	5.2.5.) Come up with questions to ask before starting each lesson in order to activate your child's prior knowledge on the topic.		
	5.2.6.) (High School) Explain the lessons by providing some fundamental information on the subject.		
	5.2.7.) (High School) Provide ample time for your children to ask questions and/or go over challenging concepts they might be struggling to understand.		
	5.2.8.) (High School) End the lesson with a thorough summary of all the information.		
	5.2.9.) (High School) Designate a few assignments or assessments to gauge how much your children have learned.		
	6). Construct a statement for the student's planned interaction with their peers, including -	IAP Team	
	6.1.) Extracurricular activities, homeschool group fieldtrips, clubs, sports (teams / competition).		
	7). Determine education assessment type and timeline, such as -	IAP Team	
	7.1.) Standardized tests.		
	7.1.1.) Examples of assessment tests: NWEA® MAP®, Renaissance Star®, Iowa Test of Basic Skills®, the California Achievement Test, the Stanford Achievement Test, the Comprehensive Test of Basic Skills, the Metropolitan Achievement Test, a State Education Department test, WileyPLUS with ORION, MetaMetrics™ (The Quantifiable® Framework for Mathematics), MetaMetrics® (The Lexile Framework for Reading).		
	7.2.) Instructor provided, cumulative, periodic testing (end of year / end of semester).		
	8). Construct a timeline, including the beginning of the coursework defined in item (5) of this section, including -	IAP Team	
	8.1.) Projected start/end date, and dates for breaks.		
	8.2.) If appropriate, include summer (between grade break) coursework for student to complete.		

ITS & Academic Planning Guide Repository

Back4App Hosting

- The SQLite DB constructed and shared in Milestone 1 has been imported to Back4App, the website hosting service.

DB Browser for SQLite - C:\Users\thom015\OneDrive - INFICON GmbH\Documents\Georgia Tech\CS-6460 - D01 - Education Technology\Project\DRUG

File Edit View Tools Help

New Database Open Database Write Changes Revert Changes Open Project Save Project Attach Database

Database Structure Browse Data Edit Pragmas Execute SQL

Table: school_detail

	school_no	school_name	school_type	domain
122	124	esparklearning.com/activities	eSpark Learning	elementary Math
123	125	esparklearning.com/activities	eSpark Learning	middle Math
124	126	https://www.lexalearning.com/core5	Lexia	PreK Reading
125	127	https://www.lexalearning.com/core5	Lexia	elementary Reading
126	128	https://www.lexalearning.com/powerup	Lexia	middle Reading
127	129	https://www.lexalearning.com/powerup	Lexia	high Reading
128	130	https://www.lexalearning.com/lexia-english	Lexia	elementary English Development
129	131	https://www.lexalearning.com/lexia-english	Lexia	middle English Development
130	132	https://www.lexalearning.com/rapid	Lexia	elementary Reading/Language
131	133	https://www.lexalearning.com/rapid	Lexia	middle Reading/Language
132	134	https://www.lexalearning.com/rapid	Lexia	high Reading/Language
133	135	https://www.mobymax.com/curriculum/social...	MobyMax	elementary Social Studies
134	136	https://www.mobymax.com/curriculum/social...	MobyMax	middle Social Studies
135	137	https://www.mobymax.com/curriculum/science	MobyMax	elementary Science
136	138	https://www.mobymax.com/curriculum/science	MobyMax	middle Science
137	139	https://www.mobymax.com/curriculum/math	MobyMax	elementary Math
138	140	https://www.mobymax.com/curriculum/math	MobyMax	middle Math
139	141	https://www.mobymax.com/curriculum/early...	MobyMax	elementary Reading
140	142	https://www.mobymax.com/curriculum/early...	MobyMax	middle Reading
141	143	https://www.mobymax.com/curriculum/...	MobyMax	elementary Reading
142	144	https://www.mobymax.com/curriculum/...	MobyMax	middle Reading
143	145	https://www.mobymax.com/curriculum/english...	MobyMax	elementary ELA
144	146	https://www.mobymax.com/curriculum/english...	MobyMax	middle ELA
145	147	https://www.scilearn.com/english-language...	Carnegie Learning	elementary Reading/ELA
146	148	https://www.scilearn.com/english-language...	Carnegie Learning	middle Reading/ELA
147	149	https://www.scilearn.com/english-language...	Carnegie Learning	high Reading/ELA
148	150	https://www.scilearn.com/reading-assistant-plus/	Carnegie Learning	elementary Reading
149	151	https://www.scilearn.com/reading-assistant-plus/	Carnegie Learning	middle Reading
150	152	https://www.scilearn.com/secondary-program/	Carnegie Learning	high Reading
151	153	https://www.scilearn.com/secondary-program/	Carnegie Learning	middle Reading
152	154	https://www.scilearn.com/elementary-program/	Carnegie Learning	high Reading
153	155	https://www.thinkcerala.com/solutions	ThinkCERA	elementary Reading/Writing/ELA
154	156	https://www.thinkcerala.com/solutions	ThinkCERA	middle Reading/Writing/ELA
155	156	https://www.thinkcerala.com/solutions	ThinkCERA	high Reading/Writing/ELA

Back4App Dashboard Hello, tpizzone3 NEW APP

156 objects Protected

school_no	school_name	school_webpage	solution	domain
1	Carnegie Learning	https://www.carneg...	MATH1a	Math
2	Carnegie Learning	https://www.carneg...	MATH1a	Math
3	Carnegie Learning	https://discover.c...	MATH1aFlex	Math
4	Carnegie Learning	https://discover.c...	MATH1aFlex	Math
5	DreamBox	https://www.dreamb...	DreamBox	Math
6	DreamBox	https://www.dreamb...	DreamBox	Math
7	Squiggle Park	https://www.squigg...	DreamBox	Reading
8	Reading Plus	https://www.readin...	InSight	Reading
9	Reading Plus	https://www.readin...	InSight	Reading
10	Reading Plus	https://www.readin...	InSight	Reading
11	ASSISTments	https://new.assist...	ASSISTments	Math
12	ASSISTments	https://new.assist...	ASSISTments	Math
13	ASSISTments	https://new.assist...	ASSISTments	Math
14	IXL	https://www.ixl.co...	IXL	Math
15	IXL	https://www.ixl.co...	IXL	Math
16	IXL	https://www.ixl.co...	IXL	Math
17	IXL	https://www.ixl.co...	IXL	Math
18	IXL	https://www.ixl.co...	IXL	Science
19	IXL	https://www.ixl.co...	IXL	Science
20	IXL	https://www.ixl.co...	IXL	Science
21	IXL	https://www.ixl.co...	IXL	Language Arts
22	IXL	https://www.ixl.co...	IXL	Language Arts
23	IXL	https://www.ixl.co...	IXL	Language Arts
24	IXL	https://www.ixl.co...	IXL	Language Arts
25	IXL	https://www.ixl.co...	IXL	Spanish

Web Development

New Layout

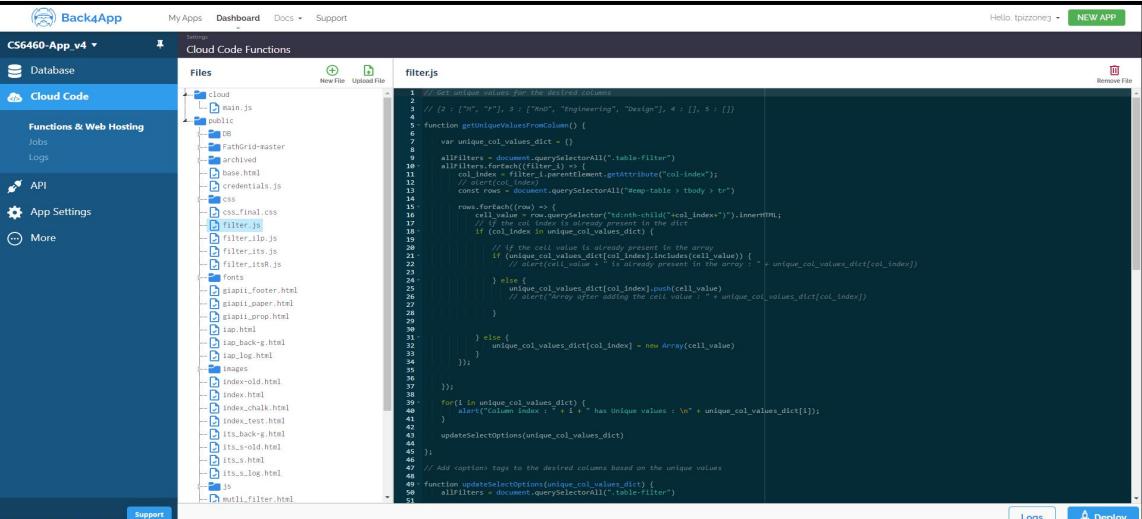
- Based on benchmarking of webpage styles, the webpage layout was transformed.
 - Prior Design: side page navigation bar.
 - Typical with “data-heavy” websites/web applications
 - Current Design: top page navigation bar.
 - Typical with “information-heavy” websites/web applications

The screenshot shows a top navigation bar with links: HOME, IAP GUIDE, ITS SEARCH, and MORE. The 'MORE' link is highlighted. Below the navigation bar is a large orange sidebar containing three sections: 'Academic Planning', 'ITS Search', and 'More'. The 'Academic Planning' section includes links for Background Information, Guidelines, Assessment Links, and Research Log. The 'ITS Search' section includes links for Background Information, Search Tool, Full School List, and Research Log. The 'More' section includes links for GIACII-K12 is..., GIACII-K12 is not..., Terminology, and Additional Resources. The main content area to the right of the sidebar contains the title 'CS6460: Educational Technology' and a 'Project Abstract' section with detailed text about Intelligent Tutoring Systems (ITS) and Individualized Education Plans (IEPs). A callout box highlights the 'nav-bar: left-align' design.

The screenshot shows a top navigation bar with links: HOME, IAP GUIDE, ITS SEARCH, and MORE. The 'MORE' link is highlighted. Below the navigation bar is a large orange header section featuring the 'GIACII-K12' logo and a photograph of a classroom. The main content area to the right of the header contains the title 'GIACII-K12' and a 'Presentation for K-12 Students: a Resource Guide' section. A callout box highlights the 'nav-bar: top-align' design.

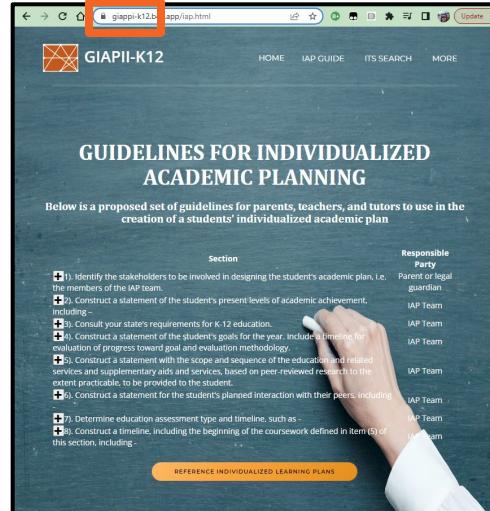
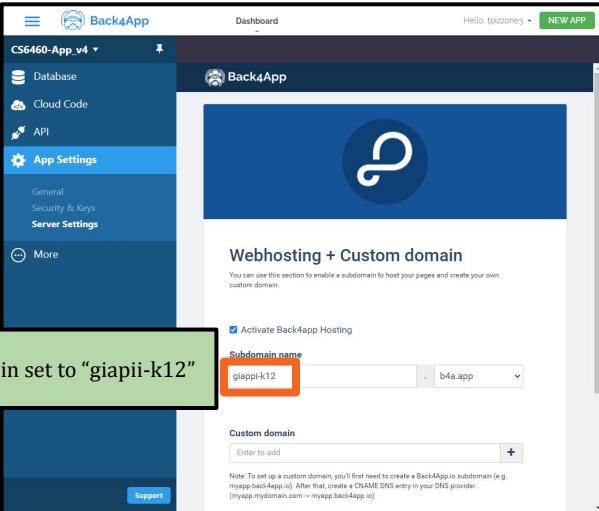
Deployment

- All html / javascript / css files were written locally and pushed to Back4App (host) via cli.
- Back4App allows users to define a subdomain for webhosting.
 - Access site:
<https://giappii-k12.b4a.app/>



The screenshot shows the Back4App Cloud Code Functions interface. The left sidebar lists various files: main.js, public, DB, FathGrid-master, archived, base.html, credentials.js, css, fonts, filter_final.css, filter.js, filter_lbs.js, filter_lts.js, filter_ltsR.js, fonts, gispoi_footer.html, gispoi_paper.html, gispoi_prop.html, iap.html, iap_back-g.html, iap_log.html, images, index-old.html, index.html, index_chalk.html, index_test.html, iits-lts.html, iits-s-old.html, iits-s.html, iits-s.log.html, js, and multi_filter.html. The right pane displays the code for the 'filterjs' file:

```
1 // get unique values for the desired columns
2
3 // {2 : ["m", "r"], 3 : ["m", "d", "Engineering", "Design"], 4 : {}, 5 : []}
4
5 function getUniqueValuesFromColumn() {
6
7     var unique_col_values_dict = {}
8
9     allFilters = document.querySelectorAll("table-filter")
10
11    allFilters.forEach(filter_i => {
12        col_index = filter_i.parentElement.getAttribute("col-index");
13
14        const rows = document.querySelectorAll("#app-table > tbody > tr");
15
16        rows.forEach(row => {
17            cell_value = row.querySelector(`td:nth-child(${col_index})`).innerHTML;
18
19            if (col_index in unique_col_values_dict) {
20
21                // if the cell value is already present in the array
22                if (!unique_col_values_dict[col_index].includes(cell_value)) {
23                    unique_col_values_dict[col_index].push(cell_value);
24                }
25            } else {
26                unique_col_values_dict[col_index] = new Array(cell_value);
27            }
28        });
29
30
31        for (i in unique_col_values_dict) {
32            alert(`Column index : ${i} has Unique values : \n${unique_col_values_dict[i]}`);
33        }
34
35        updateSelectOptions(unique_col_values_dict)
36    });
37
38
39    // Add options tags to the desired columns based on the unique values
40    updateSelectOptions(unique_col_values_dict)
41
42    // Add options tags to the desired columns based on the unique values
43    updateSelectOptions(unique_col_values_dict)
44
45}
46
47 // Add options tags to the desired columns based on the unique values
48
49 function updateSelectOptions(unique_col_values_dict) {
50    allFilters = document.querySelectorAll("table-filter")
51}
```



Shortcomings

- GIAPPI-K12 webpage tables do not operate as initially intended (yet).
 - Searchable table; table only has drop-down filters for the columns.
 - Attempts to use Datatable() library failed consistently.
 - Key columns do include a drop-down options for filtering.

"<https://www.datatables.net/>"
Search + Column Search capability with datatables library.

Name	Position	Office	Age	Start date	Salary
Airi Satou	Accountant	Tokyo	33	2008-11-28	\$162,700
Angelica Ramos	Chief Executive Officer (CEO)	London	47	2009-10-09	\$1,200,000
Ashton Cox	Junior Technical Author	San Francisco	66	2009-01-12	\$86,000
Bradley Greer	Software Engineer	London	41	2012-10-13	\$132,000
Brenden Wagner	Software Engineer	San Francisco	28	2011-06-07	\$206,850
Brielle Williamson	Integration Specialist	New York	61	2012-12-02	\$372,000
Bruno Nash	Software Engineer	London	38	2011-05-03	\$163,500
Caesar Vance	Pre-Sales Support	New York	21	2011-12-12	\$106,450
Cara Stevens	Sales Assistant	New York	46	2011-12-06	\$145,600
Cedric Kelly	Senior Javascript Developer	Edinburgh	22	2012-03-29	\$433,060

Tables and drop-down menus were written (not based-off existing library).

GIAPPI-K12

INTELLIGENT TUTORING SYSTEMS

Search for commercially available ITS which best fit your needs

SUPPORTING RESEARCH FOR ITS

School	ITS	School Type	Subject / Domain	Curriculum Style	Webpage
Carnegie Learning	MATHia	ITS	Math	Core Curriculum	https://www.carnegielearning.com/solutions/math/middle-school/math-solutions
Carnegie Learning	MATHia	ITS	Reading	Core Curriculum	https://www.carnegielearning.com/solutions/math/middle-school/math-solutions
Carnegie Learning	MATHiaFlex	ITS	Science	Complementary to Core Curriculum	https://discover.carnegielearning.com/MATHflex.html
DreamBox	DreamBox	ITS	Language Arts	Complementary to Core Curriculum	https://www.dreambox.com/k-8-math-lessons
DreamBox	DreamBox	ITS	Spanish	Complementary to Core Curriculum	https://www.dreambox.com/k-8-math-lessons
Douglas Park	DreamBox	ITS	Social Studies	Complementary to Core Curriculum	https://www.douglaspark.com/
Douglas Park	DreamBox	ITS	AP	Complementary to Core Curriculum	https://www.douglaspark.com/
Reading Plus	insight	ALP	English	Complementary to Core Curriculum	https://www.readingplus.com/
Reading Plus	insight	ALP	German	Complementary to Core Curriculum	https://www.readingplus.com/
ASISTments	ASISTments	ITS	Latin	Complementary to Core Curriculum	https://www.asistments.org/
ASISTments	ASISTments	ITS	Chinese	Complementary to Core Curriculum	https://www.asistments.org/
XL	XL	ITS	French	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	Chemistry	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	ELA	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	ELA & Writing	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	ELA / Social Studies / Science	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	Literacy	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	ELA, Reading, Math	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	Spanish Language Arts and Literacy	Core Curriculum	https://www.xl.com/math
XL	XL	ITS	Espanol	Core Curriculum	https://www.xl.com/math