AskMissy

For a more *personalized* educational resource finder

Feasibility Presentation - November 3, 2021

Team Red
CS410
Fall 2021

Old Dominion University

Team Red

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Web content	🟡
UI/UX	🟢
Database	🔵
Algorithm	🔵
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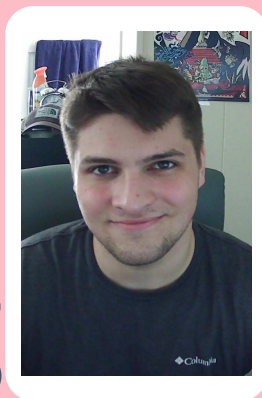
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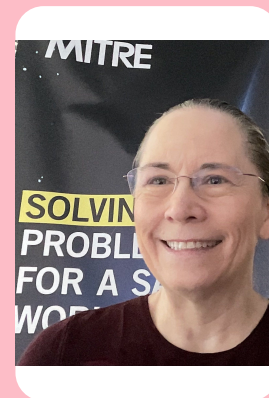
Laura Sakos

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Problem Introduction

Students have difficulty finding resources for their classes

Students underperform on SOLs

Schools lose accreditation due to low SOL scores

Schools and Students lose resources vital to learning

Teachers

- Teachers need access to better supplemental resources
  - Underrepresented sources need more time in the limelight
  - Introduce students to new takes on old ideas
  - Show students the actions that underrepresented groups have taken in the past
  - Reduce 'white-washing'

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Students

- Students face many struggles in their pursuit of learning
  - Time management, familial commitment, and difficult lessons

- A consistent struggle is finding reliable resources to aid and reference in their assignments

- The ability to correctly research subject matter is a skill that needs to persist into adulthood

- A student's access to resources greatly determines their success in accurately researching data

SOLs

- SOLs are the Standards of Learning - Virginia's method of measuring the learning and achievement of students in English, mathematics, history, and science.

- For many students these are the culmination of their entire school year.

- SOLs contribute to determining a school's accreditation and the class placement of students. (16)

Impact of COVID-19 on Students

- COVID-19 has negatively impacted students in all districts, economic status and ethnicity as seen by their SOL test scores.

- For example, the reading SOL scores have gone down between the 2018-2019 and the 2020-2021 school year an average of 9% for all students.

- This decrease is more evident for Black, Hispanic, and low-income students, who dropped an average of 11%. (16)

Pass Rate of Virginia Math SOL by Demographic

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2020-2021
All Students	87	69	71	75	79	80	79	77	82	54
Asian	95	87	89	90	93	93	93	92	94	79
Black	77	52	55	60	67	67	66	63	70	33
Economically Disadvantaged	78	54	57	61	68	68	67	65	72	36
English Learners	76	49	50	52	56	55	53	49	58	20
Hispanic	83	61	64	67	72	72	71	68	74	37
Students with Disabilities	63	37	38	40	45	47	46	44	52	26
White	85	67	70	73	77	78	77	75	80	54

School Year

(17)

Pass Rate of Virginia Reading SOL Tests by Demographic

	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2020-2021
All Students	74	79	80	80	79	77	69
Asian	87	91	91	91	90	89	85
Black	59	65	66	66	66	64	54
Economically Disadvantaged	59	65	66	66	66	64	54
English Learners	34	40	38	36	35	33	22
Hispanic	64	70	70	70	67	65	53
Students with Disabilities	38	41	43	44	44	42	36
White	82	86	86	86	86	85	78

School Year

(17)

The Problem

Students' performance are non-optimized because of a lack of materials tailored to their learning preferences

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Problem Flow

Student has new assignment

Start: Student has to find resource for class, can't find one that fits their criteria

Student searches the internet

Student looks in school/local library

Student asks their teacher/tutor

Student asks their friends

found recommendation, dislikes it

no recommendation found

found recommendation, likes it

red = result when student can't find resource fitting their criteria
green = successful find

Student has new assignment

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The *AskMissy* Solution

The AskMissy software application will help users find the resources necessary for them to bridge the gap between conventional and digital learning for a more personalized experience.

Look for Resources About *YOU*

Filter results about books from a **wide** range of topics based on user preferences

Search resources about/written by authors from different communities: **LGBTQ+**, **BLM, mental health, etc...**

Allows for a more ***personalized*** experience
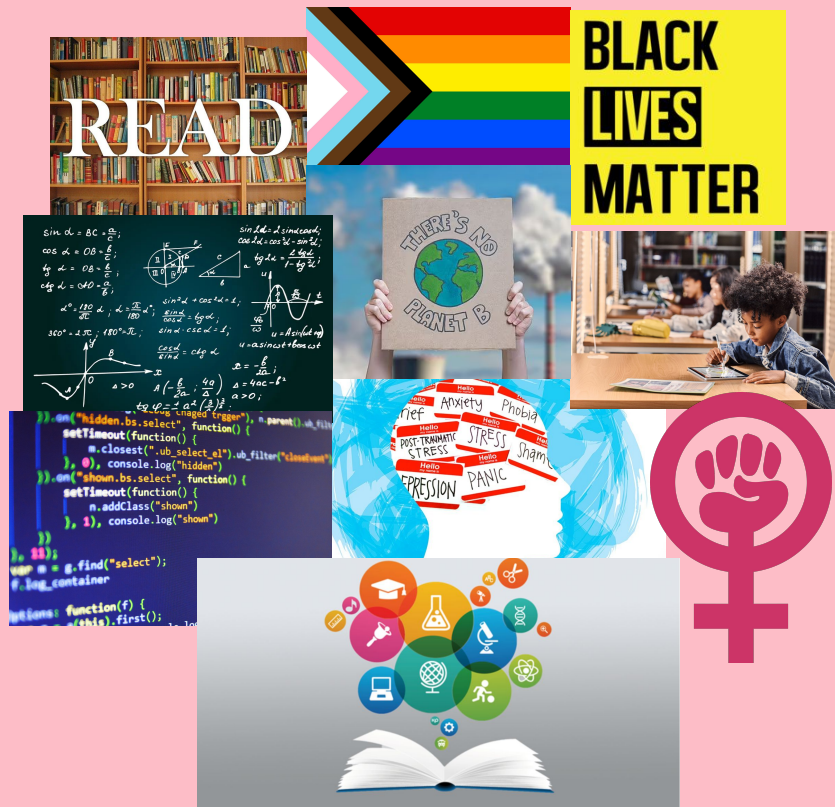
Resource Statistics

Users can see the individual statistics of each resource they select/search:
- Summary
- ISBN (books)
- Reviews/Ratings
- Authors
- Number of Pages/Chapters (books)
- Genre (books)

For books, users will be able to search through available resources at their nearest bookstore through boolean attributes

Subcategory Search Tool
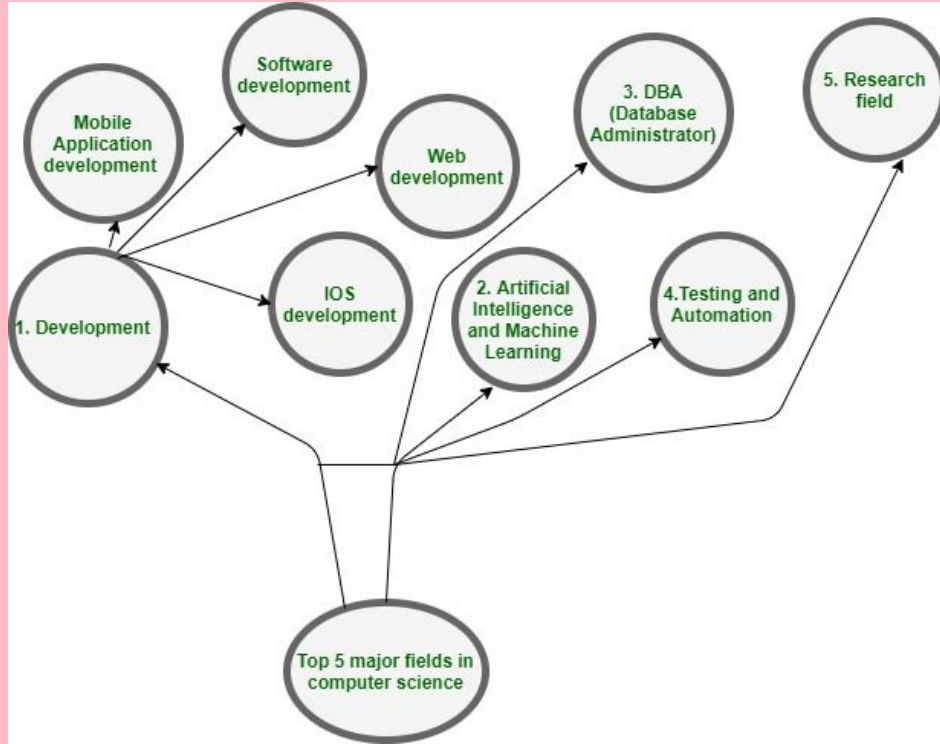
Provide the users the ability to search for *specific* subcategories about **nonfiction** resources

'Swipe left/right' on a book

Text too complicated? Filter through **difficulty/experience** level

Personalized Profiles:

Make profiles **public** *and* **private**

User types
   Guest - Given basic search functions
   Students - Can display interest on profile, search using full
   algorithm, provides feedback
   Teachers/Tutor - Can display what they teach and organize
   class groups, provides feedback
   Librarian - Keeps inventory of resources, receives feedback
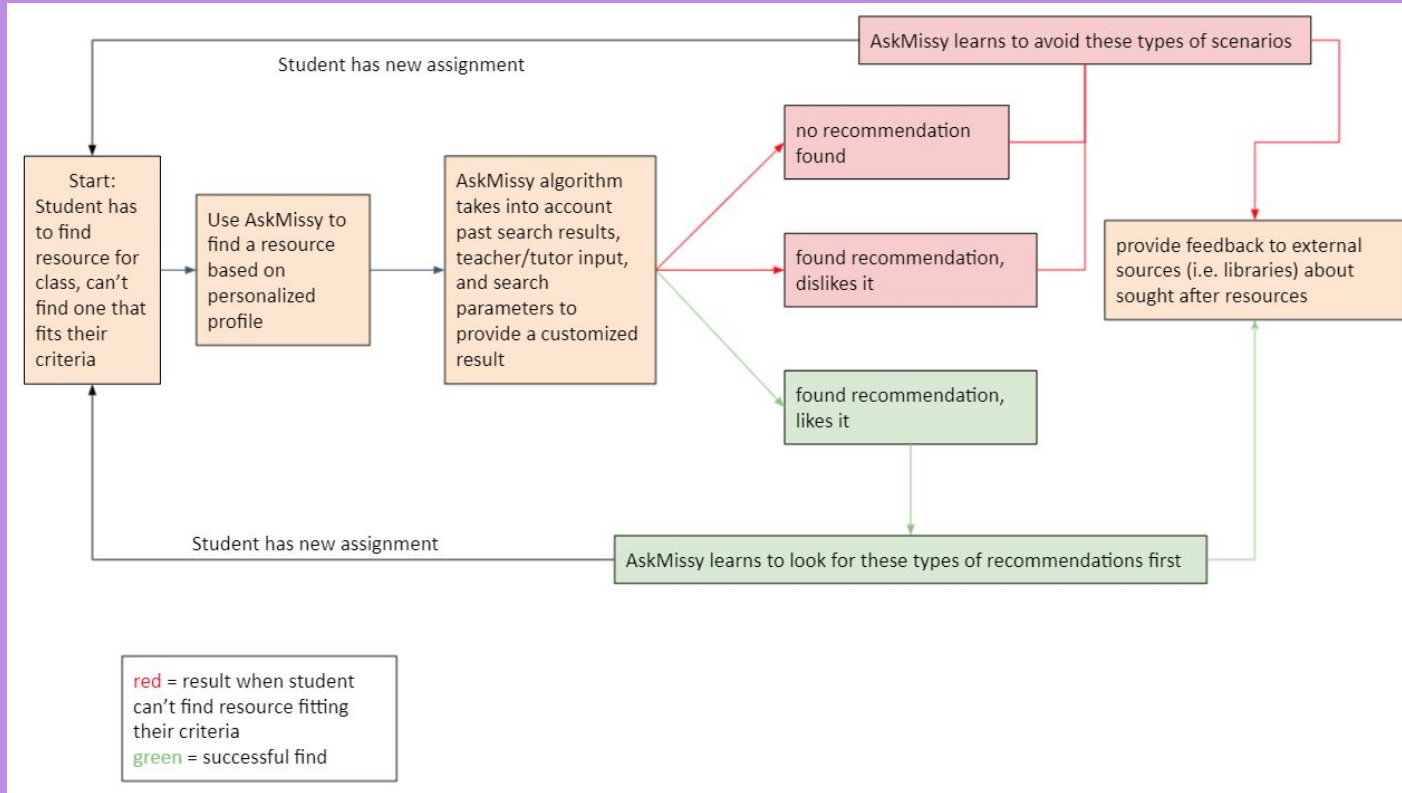   Admin - keeps database

Community/Library Interaction

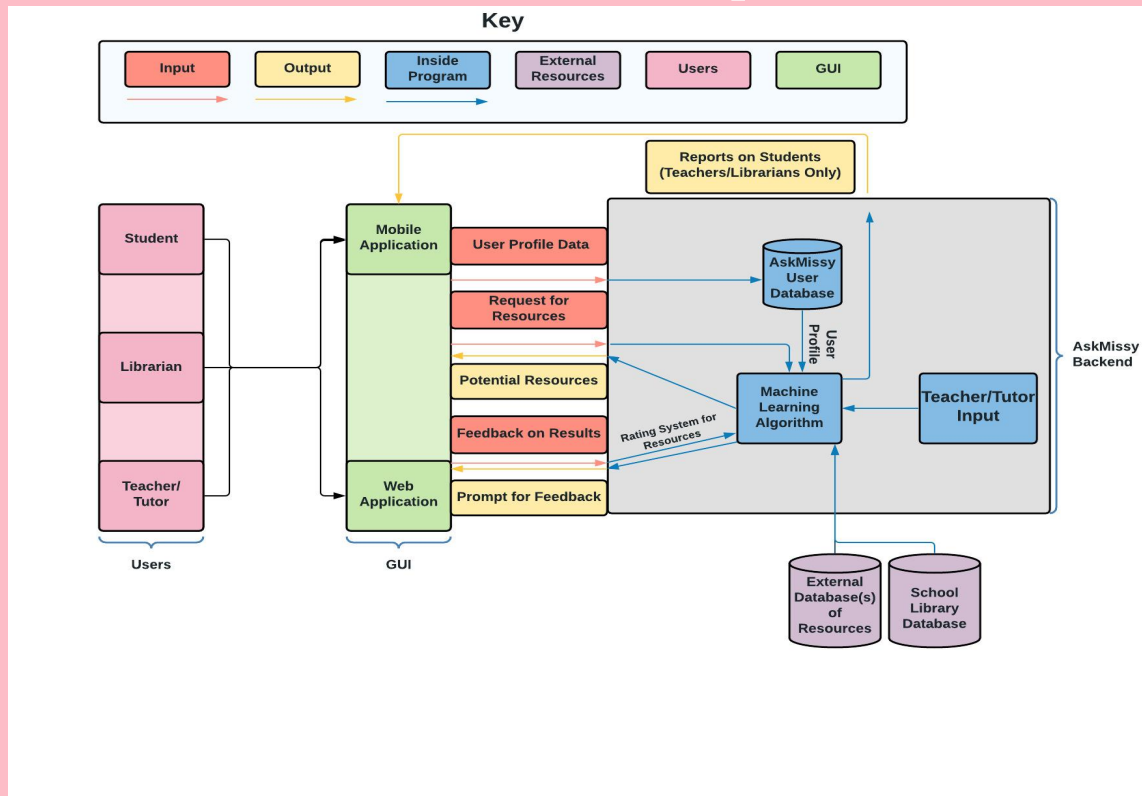If the resource you want isn't available where you want it, say something on the app!

Registered bookstores & libraries will receive feedback to help stay updated with inventory

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Solution flow

Major Functional Component Diagram

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Competition Matrix

	What Should I Read Next	Goodreads	Amazon	Allreaders	AskMissy
Specific Book Search	✓	✓	✓	✓	✓
Genre Search	✓	✓	✓	✓	✓
Cover Shown	✓	✓	✓		✓
Incorporated Synopsis		✓	✓	✓	✓
Incorporated Reviews And Rating System		✓	✓		✓
Personalized Profiles	✓	✓	✓		✓
Specified Groups/ Communities		✓			✓
Community/ School Library Integration					✓
Reading/ Difficulty Level					✓
Reports for Teachers/ Librarians					✓
Intelligent Feedback					✓

Customer Risks

Risk	Mitigation
C1: User is dissatisfied with the application	C1: Users are asked for their feedback on improving the application in future
C2: Users don't get the experience they expected from a resource they searched up	C2: The software will ask the user for their intended experience and tones to look for it in a resource
C3: Texts do not fit the user's personalized preferences or are to hard to read	C3: Users are able to search for specific subcategories and filter results by difficulty level to their liking
C4: Users do not know how to use the AskMissy application	C4: Users are given tutorials on setting up their personalized profiles and all the search/filter tools available to them

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Customer Risk Matrix

Likelihood	Consequence				
	insignificant	minor	moderate	major	critical
Almost certain					
likely		C2			
possible	C3 C2	C3			
unlikely	C4	C1 C4	C1		
rare					

Post-Mitigated   Team Red - CS 410   Pre-Mitigated

Technical & Security Risks

Risk	Mitigation
T1: Searches leading to incorrect or inconsistent results of resources	T1: Thorough testing of the search and filtering algorithms with datasets
T2: The servers can't keep up with the growing database as the app grows popular with users	T2: Implement an architecture for the app that can be scaled up from the user growth
T3: Compatibility with external resources becoming unaligned	T3: Steady connection with external resources to stay up-to-date
S1: User data security breach	S1: Database Encryption
S2: Unauthorized users entering the application	S2: Strong password and authentication methods

Technical & Security Risk Matrix

Likelihood	Consequence				
	insignificant	minor	moderate	major	critical
Almost certain					
likely					
possible		T3			T1
unlikely		T3	T1	S2	S1
rare		T2	S2	T2	S1

Post-Mitigated   Pre-Mitigated

What AskMissy *Won't* Do

AskMissy *won't*:

Teach students directly - it will help users find the appropriate resource

Be a social media platform

Store the full resources found within the database - users will need to obtain resources separately

Conclusion

Student performance is falling across the board

Adjustment to new learning mediums must become a regular aspect of student learning

Individualized resource locator is vital to student learning

Machine learning will provide personalized resource recommendations

AskMissy will allow students to efficiently find resources to aid them in their learning journey

References
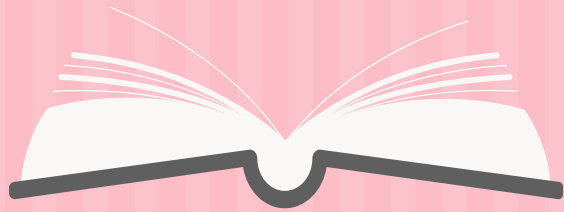
(1) "Allreaders.com features detailed book and movie reviews from many different genres of books!," *Detailed Book review summaries*. [Online]. Available: http://allreaders.com/. [Accessed: 01-Oct-2021].

(2) "Amazon.com: Kindle eBooks: Kindle Store: Nonfiction, Literature & Fiction, Foreign Languages, Business & Money & More," *Amazon*, 2016. [Online]. Available: https://www.amazon.com/Kindle-eBooks/. [Accessed: 01-Oct-2021].

(3) Crain, C., & Waldman, K. (2018, June 14). *Why we don't read, revisited*. The New Yorker. Retrieved September 22, 2021, from https://www.newyorker.com/culture/cultural-comment/why-we-dont-read-revisited.

(4) Gelles-Watnick, R., & Perrin, A. (2021, September 21). *Who doesn't read books in America?* Pew Research Center. Retrieved September 22, 2021, from https://www.pewresearch.org/fact-tank/2021/09/21/who-doesnt-read-books-in-america/.

(5) Fuglei, M. (2019, July 22). *Why students who read for pleasure are stronger academically: Resilient educator*. ResilientEducator.com. Retrieved October 1, 2021, from https://resilienteducator.com/classroom-resources/how-reading-for-pleasure-helps-students-develop-academically/.

(6) "Meet your next favorite book," *Goodreads*. [Online]. Available: https://www.goodreads.com/. [Accessed: 01-Oct-2021].

(7) R. Gelles-Watnick and A. Perrin, "Who doesn't read books in America?," *Pew Research Center*, 21-Sep-2021. [Online]. Available: https://www.pewresearch.org/fact-tank/2021/09/21/who-doesnt-read-books-in-america/. [Accessed: 01-Oct-2021].

(8) Rosalina, E. N. (2018, November 30). *The correlation between self-esteem and student's reading comprehension*. English Language Teaching Educational Journal. Retrieved October 1, 2021, from https://eric.ed.gov/?id=EJ1283078#:~:text=The%20result%20of%20the%20study,with%20significance%20tailed%200.006%20%3C%200.05.

References
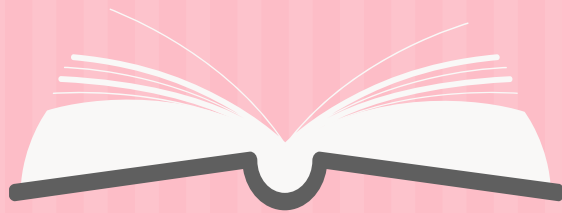
(9)Gioia, D. (n.d.). Reading at Risk. Washington D.C., Virginia ; National Endowment for the Arts. https://www.arts.gov/sites/default/files/RaRExec_0.pdf

(10)Henry. (2021, May 27). *The importance of Reading: Click here to read more*. University of the People. Retrieved September 22, 2021, from https://www.uopeople.edu/blog/why-its-important-to-read/#:~:text=Reading%20has%20been%20proven%20to,even%20help%20prevent%20alzheimer's%20disease.&text=Reading%20also%20develops%20the%20imagination,never%20been%20able%20to%20before.

(11)Ingraham, C. (2019, April 27). *Analysis | leisure reading in the U.S. is at an all-time low*. The Washington Post. Retrieved September 22, 2021, from https://www.washingtonpost.com/news/wonk/wp/2018/06/29/leisure-reading-in-the-u-s-is-at-an-all-time-low/.

(12)"Meet your next favorite book," *Goodreads*. [Online]. Available: https://www.goodreads.com/. [Accessed: 01-Oct-2021].

(13)R. Gelles-Watnick and A. Perrin, "Who doesn't read books in America?," *Pew Research Center*, 21-Sep-2021. [Online]. Available: https://www.pewresearch.org/fact-tank/2021/09/21/who-doesnt-read-books-in-america/. [Accessed: 01-Oct-2021].

(14)Rosalina, E. N. (2018, November 30). *The correlation between self-esteem and student's reading comprehension*. English Language Teaching Educational Journal. Retrieved October 1, 2021, from https://eric.ed.gov/?id=EJ1283078#:~:text=The%20result%20of%20the%20study,with%20significance%20tailed%200.006%20%3C%200.05.

(15) "What should I read next? book recommendations from readers like you," *What Should I Read Next? Book recommendations from readers like you*. [Online]. Available: https://www.whatshouldireadnext.com/. [Accessed: 01-Oct-2021].

(16) Virginia Department of Education. (2021, August 26). 2020-2021 SOL Test Results Reflect National Trends, Unprecedented Challenges Results Set Baseline for Recovery [Press release]. https://www.doe.virginia.gov/statistics_reports/sol-pass-rates/index.shtml.

References

(17) Virginia Department of Education. (n.d.). *Sol Test Pass Rates & other results*. VDOE :: SOL Pass Rates Results & Other Results. Retrieved October 7, 2021, from https://www.doe.virginia.gov/statistics_reports/sol-pass-rates/index.shtml.

(18) Garcia, E., Weiss, E., & Welshans, I. (2020, October 7). *What teaching is like during the pandemic-and a reminder that listening to teachers is critical to solving the challenges the coronavirus has brought to public education*. Economic Policy Institute. Retrieved October 7, 2021, from https://www.epi.org/blog/what-teaching-is-like-during-the-pandemic-and-a-reminder-that-listening-to-teachers-is-critical-to-solving-the-challenges-the-coronavirus-has-brought-to-public-education/.

(19) *October 2015 frequently asked questions about Sol testing*. Virginia Department of Education. (2015, October). Retrieved October 7, 2021, from https://www.doe.virginia.gov/testing/sol_faq.pdf.

(20) *5 most-recommended career fields in computer science*. GeeksforGeeks. (2020, August 29). Retrieved October 20, 2021, from https://www.geeksforgeeks.org/5-most-recommended-career-fields-in-computer-science/.
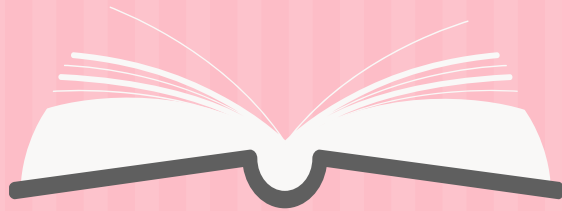
Glossary of Terms

- **Agile:** Set of frameworks and practices where solutions evolve through collaboration between self-organizing cross-functional teams
- **AskMissy:** a software application that will help users find more relevant resources
- **API:** Application Programming Interface
- **Data Retention:** The continued storage of an organization's data for compliance or business reasons
- **Database:** Structured data held in a computer
- **Economically Disadvantaged:** a student in Virginia is considered economically disadvantaged if the student:
  - is eligible for Free/Reduced Meals
  - receives TANF, or
  - is eligible for Medicaid

- **File Server:** Controls access to separately stored files
- **Personal Learning:** an educational approach that aims to customize learning for each user's strengths, needs, skills, and interests
- **Temporary Assistance for Needy Families (TANF):** the TANF program provides eligible families with a monthly cash payment to meet their basic needs.
- **User:** a user will be anyone using the AskMissy Interface and will fall into the category of a guest, student, teacher/mentor, librarian or admin.
- **Web Scraping:** Extracting/scraping data from websites
- **Web Server:** A computer that runs websites
- **Windows:** Series of operating systems developed by Microsoft

Thank You

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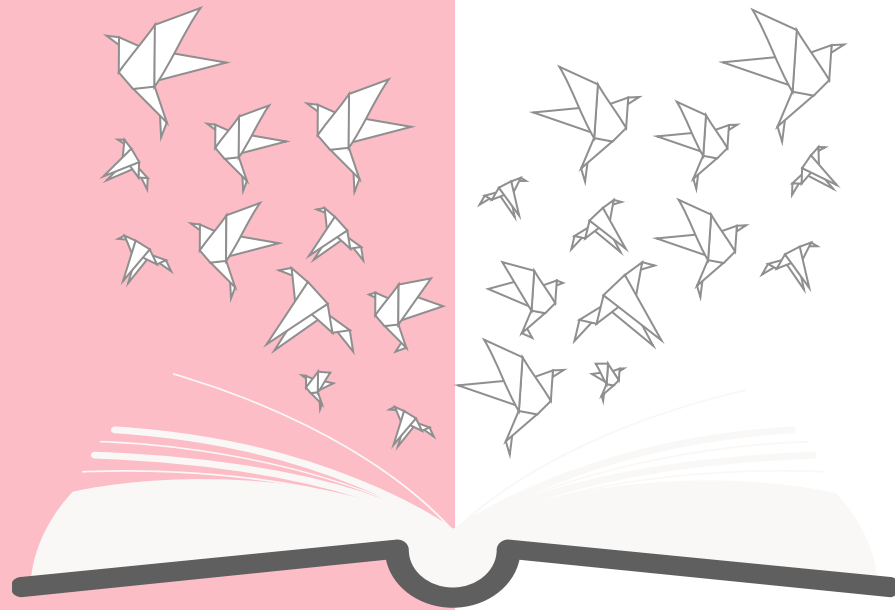
UI v1

User interface

Register

Login

Guest

Student

Teacher

Tutorial

GUI

GUI Restricted?

Profile

Settings

School

Resource