

Name of the project: ARganic Chemistry

1. List of the team members:

Thinh Lam, Yangli Liu, Pranit Brahmbhatt, Ali Saremi

2. Introduction of the app in a few sentences.

Users can select any organic molecule from a list of molecules and can examine the 3D model of that molecule using their camera sensors and AR in real-time on their screen. This will help them learn things quickly in a fun way because atoms and bonds will be color coded which will help them identify and remember things easily.

3. List the screens (activities) that will be used in your app

Main Menu

A) A7: PDB Web Service

 1- Launch Web View

 2- Launch Web Service

 3- Molecule of the Month

B) Data Base

C) AR

 1- Molecule Selection

 2- AR Visualization

4. Chosen Screens:

Molecule Selection

4a. Target users specified: Organic chemistry students.

4b. Test Users Names: Arpan, Jenny, Elizabeth, Ava, Sophia

4c. Photos of the Process of Paper Prototyping



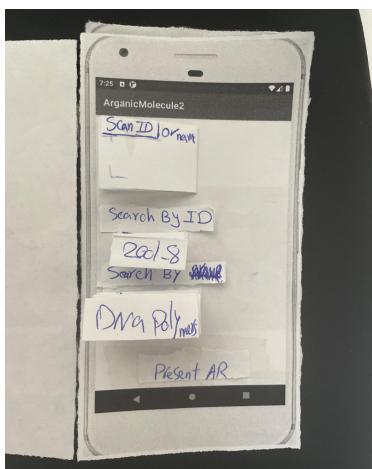
Design A: Yangli Liu



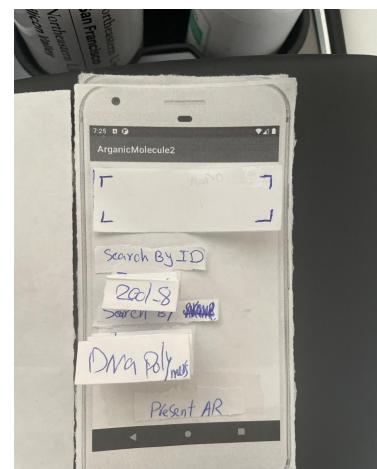
Design B from Pranit Brahmbhatt



Design C from Thinh Lam.



Design D from Ali Saremi



4d. Test Users Interaction

Test User: Arpan



Test User: Jenny



Test User: Elizabeth



Test User: Ava



Test User: Sophia



4e. Reactive Feedback

Arpan's Questionnaire

User 1: Design A: Amy Design B: Pranit Design C: Lam Design D: Ali

- I feel this application is easy to use (+)

1	2	3	4	5	6	7	8	9	10
							A,B,C*		

- I think the way features and information were presented are understandable (+)

1	2	3	4	5	6	7	8	9	10
							A,B,C*		

- There are some changes in this App, that I would like to change (-)

1	2	3	4	5	6	7	8	9	10
B*	A*						C*		

- I think the app was easy to use (+)

1	2	3	4	5	6	7	8	9	10
					C*				A,B*

- I felt very confident using the app (+)

1	2	3	4	5	6	7	8	9	10
				C*					A,B*

- I needed to learn a lot of things before I could get going with this App (-)

1	2	3	4	5	6	7	8	9	10
	B*	A*					C*		

- I found the App unnecessarily complex (-)

1	2	3	4	5	6	7	8	9	10
A,C*	B*								

- I think I would need the support of a technical person to be able to use this App (-)

1	2	3	4	5	6	7	8	9	10
	B*	A*					C*		

- I found the app's font and button small to read and touch (-)

1	2	3	4	5	6	7	8	9	10
A,C*	B*								

- I think memorizing the chemistry formula is easier when I can see them in 3D (+)

1	2	3	4	5	6	7	8	9	10
									A,B,C*

- I found it hard to work with AR feature and didn't know how to use it (-)

1	2	3	4	5	6	7	8	9	10
A,B,C*									

The feedback notes from Arpan:

The user one asked about the functionality of the design one to make sure he understood it correctly. Then he added that "A,B,C" designs were straight forward and he was able to know what his next step would be. However, the design "C" was a little tricky and he had to be prepared in order to use it. Then he added that he likes to have a box that gives him the options instead of typing the IDs. What he liked about design "A" was that he would see a Toast that can help him to know what the next step is. Then he added that he wants to add some features in design "C" in order to make the design more understandable, user friendly and interactive for the user. He added that giving the user more instruction about what kind of ID the user has to provide and where to find them would be a good improvement. At the end he added that giving the users the ability of knowing what are the closest options in the database based on the letters they are typing in the search box would be useful and wonderful. In other words, having the filtering feature in the search box would be a great step.

Jenny's Questionnaire

User 2: Design A: Amy Design B: Pranit Design C: Lam Design D: Ali

- I feel this application is easy to use(+)

1	2	3	4	5	6	7	8	9	10
							C*	B*	A*

- I think the way features and information were presented are understandable (+)

- There are some changes in this App, that I would like to change (-)

1	2	3	4	5	6	7	8	9	10
A*	B*	C*							

- I think the app was easy to use(+)

- I felt very confident using the app (+)

1	2	3	4	5	6	7	8	9	10
								B*	A,C*

- I needed to learn a lot of things before I could get going with this App (-)

1	2	3	4	5	6	7	8	9	10
A,B,C*									

- I found the App unnecessarily complex (-)

1	2	3	4	5	6	7	8	9	10
B,C*	A*								

- I think I would need the support of a technical person to be able to use this App (-)

1	2	3	4	5	6	7	8	9	10
A,B,C*									

- I found the app's font and button small to read and touch (-)

1	2	3	4	5	6	7	8	9	10
A,B*	C*								

- I think memorizing the chemistry formula is easier when I can see them in 3D (+)

1	2	3	4	5	6	7	8	9	10
								A,C*	B*

- I found it hard to work with AR feature and didn't know how to use it(-)

1	2	3	4	5	6	7	8	9	10
A,B*	C*								

The feedback notes from Jenny:

The design "B" was more interactive compared to other designs. The user added that having the ability to narrow down the user option in the search box would be a great improvement in the app.

Elizabeth's Questionnaire

User 3: Design A: Amy Design B: Pranit Design C: Lam Design D: Ali

- I feel this application is easy to use (+)

1	2	3	4	5	6	7	8	9	10
				C*			B*		A*

- I think the way features and information were presented are understandable (+)

1	2	3	4	5	6	7	8	9	10
					C*			B*	A *

- There are some changes in this App, that I would like to change (-)

1	2	3	4	5	6	7	8	9	10
						A*	B*		C*

- I think the app was easy to use (+)

1	2	3	4	5	6	7	8	9	10
							C*	B*	A*

- I felt very confident using the app (+)

1	2	3	4	5	6	7	8	9	10
						C	B	A	

- I needed to learn a lot of things before I could get going with this App (-)

1	2	3	4	5	6	7	8	9	10
		A		B		C			

- I found the App unnecessarily complex (-)

1	2	3	4	5	6	7	8	9	10
A,B,C									

- I think I would need the support of a technical person to be able to use this App (-)

1	2	3	4	5	6	7	8	9	10
			A		B		C		

- I found the app's font and button small to read and touch (-)

1	2	3	4	5	6	7	8	9	10
A					B		C		

- I think memorizing the chemistry formula is easier when I can see them in 3D (+)

1	2	3	4	5	6	7	8	9	10
		A,B,C							

- I found it hard to work with AR feature and didn't know how to use it (-)

1	2	3	4	5	6	7	8	9	10
A,B,C									

The feedback notes from Elizabeth:

The user mentioned it is good in design "B" there is an ability to see the 2D version and it would be even better to see the molecules info while seeing the 3d as well. Moreover, asking to have a list of options to choose what to see is more user friendly instead of knowing the ID or the specific name. The user liked the drop down in the design "A" that somehow gives the user more information about what should expect for seeing the 3d version.

Ava's Questionnaire

User 4: Design A: Amy Design B: Pranit Design C: Lam Design D: Ali

- I feel this application is easy to use(+)

- I think the way features and information were presented are understandable (+)

- There are some changes in this App, that I would like to change (-)

- I think the app was easy to use(+)

- I felt very confident using the app(+)

- I needed to learn a lot of things before I could get going with this App(-)

1	2	3	4	5	6	7	8	9	10
						D			

- I found the App unnecessarily complex(-)

- I think I would need the support of a technical person to be able to use this App(-)

- I found the app's font and button small to read and touch (-)

1	2	3	4	5	6	7	8	9	10
D									

- I think memorizing the chemistry formula is easier when I can see them in 3D(+)

1	2	3	4	5	6	7	8	9	10
D									

- I found it hard to work with AR feature and didn't know how to use it(-)

1	2	3	4	5	6	7	8	9	10
D									

The feedback notes from Ava:

The user asked about the name and ID in the design that has to use and wanted to have more specific instructions about it. The user mentioned Although the screen was straightforward and easy to use, using the “Search by Id or name” buttons needed some examples for the user to know what kind of ID and name the user needed to use. The user liked the scanning box in order to find the 3D model of the molecules. The user looked for a resulting box and wanted to see what was the closest molecule in the database after typing any letter in the search boxes. At the end the user mentioned that having the Recycler View or something like a history for the molecules that were shown in the 3d would be a good feature to have.

Sophia's Questionnaire

User 5: Design A: Amy Design B: Pranit Design C: Lam Design D: Ali

- I feel this application is easy to use(+)

- I think the way features and information were presented are understandable (+)

- There are some changes in this App, that I would like to change (-)

1	2	3	4	5	6	7	8	9	10
						D			

- I think the app was easy to use(+)

- I felt very confident using the app(+)

- I needed to learn a lot of things before I could get going with this App(-)

1	2	3	4	5	6	7	8	9	10
				D					

- I found the App unnecessarily complex(-)

- I think I would need the support of a technical person to be able to use this App(-)

- I found the app's font and button small to read and touch (-)

- I think memorizing the chemistry formula is easier when I can see them in 3D (+)

1	2	3	4	5	6	7	8	9	10
D									

- I found it hard to work with AR feature and didn't know how to use it (-)

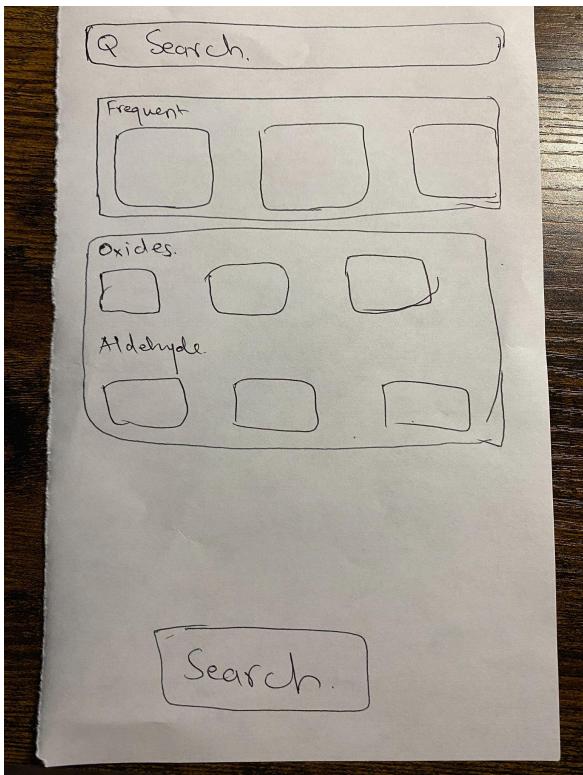
1	2	3	4	5	6	7	8	9	10
D									

The feedback notes from Sophia:

The design is easy and convenient, meanwhile it can be more practical such as adding the history dialog for molecules that were presented before. also having the filters in your search box would be good to use.

Reflective Feedback:

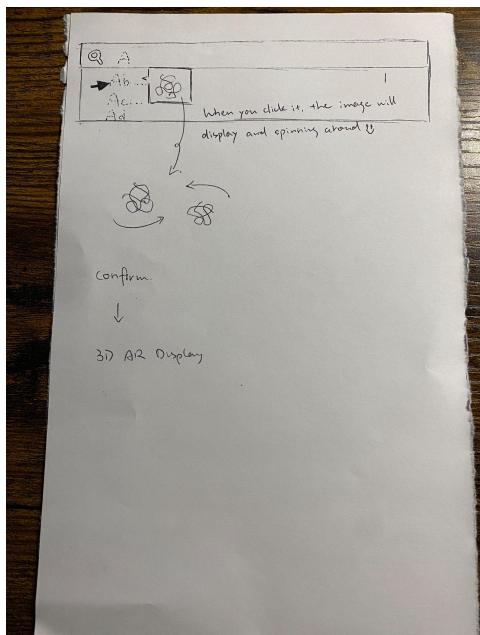
Arpan's Sketch



Arpan's conversation with facilitator:

Arpan while sketching down his design added that it would be great if we can incorporate the recently viewed molecules in our application so that users can have a track of what molecule did they view last and can even select them back from that list.

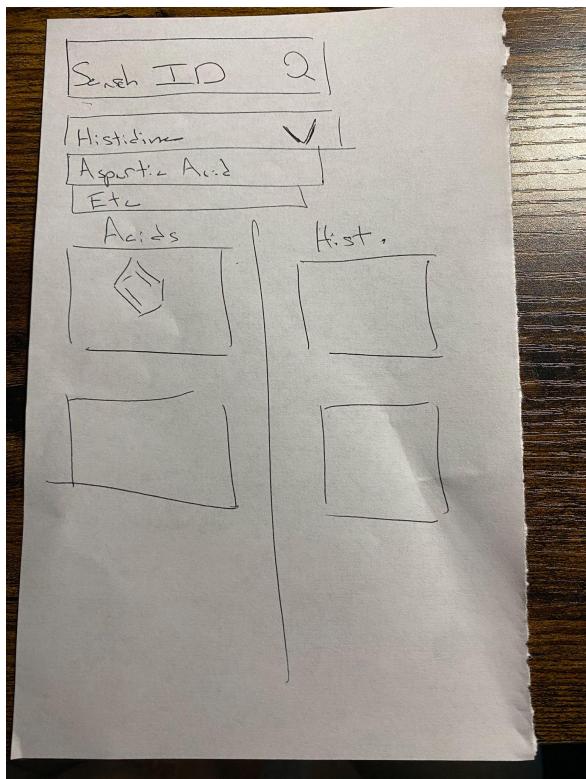
Jenny's Sketch



Jenny's conversation with facilitator:

Jenny while sketching down her design added that we can add some animated effect to the 2-D image of the molecule that we will be displaying on our main screen before presenting the 3-D view of that molecule.

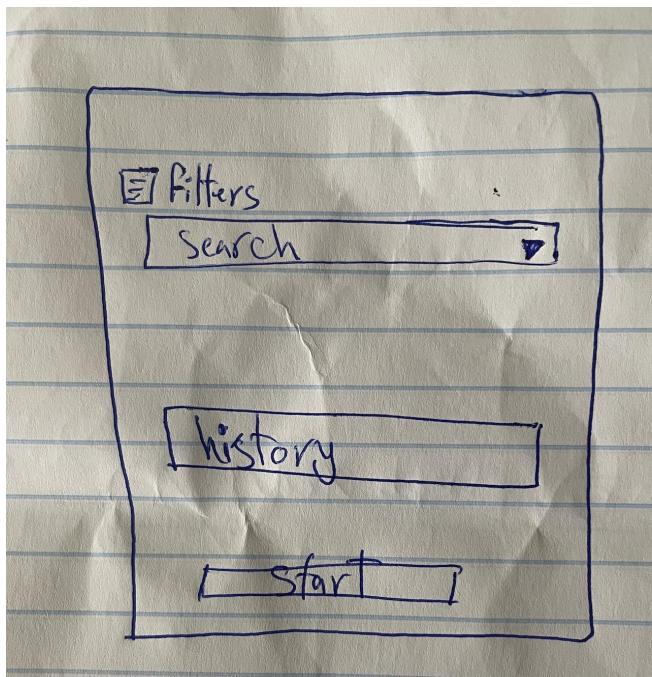
Elizabeth's Sketch



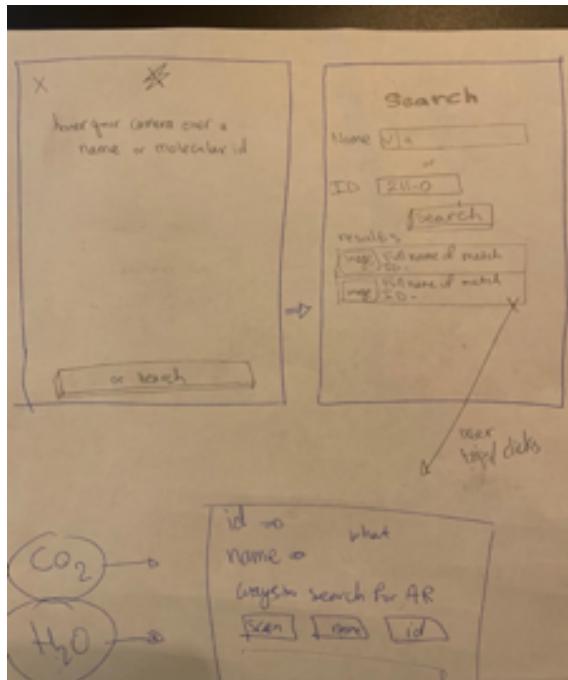
Elizabeth's conversation with facilitator:

Elizabeth while sketching down her design added that we can keep both the search and dropdown features while displaying the images of the molecule.

Ava's Sketch



Sopia's Sketch



5. Based on feedback

We got the result from the user testing feedback, Design A got 84 points, Design B got 78 points, Design C got 19 points and Design D got 41 points. So, we decided to move on with Design A and after discussion, we want to add a small animation to the 2D image that will be displayed when the user chooses one Amino Acid.

Final Design for our chosen screen:

