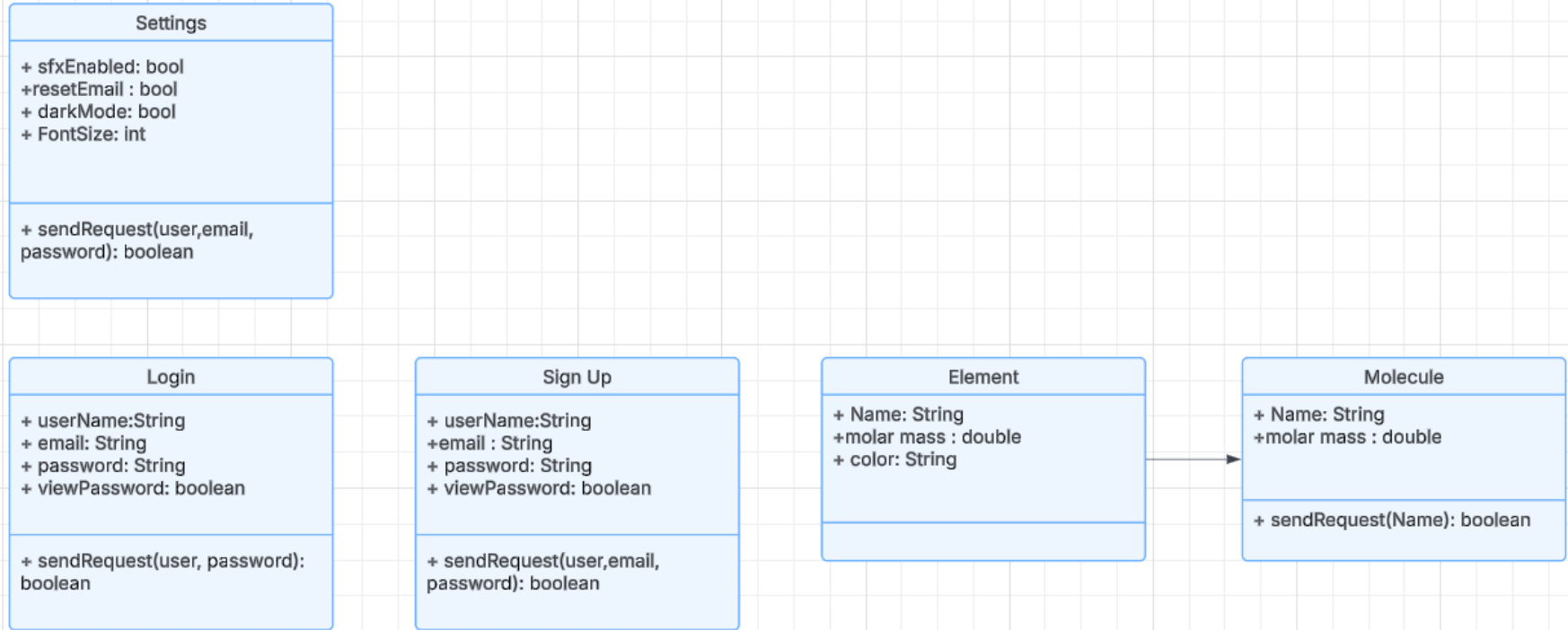




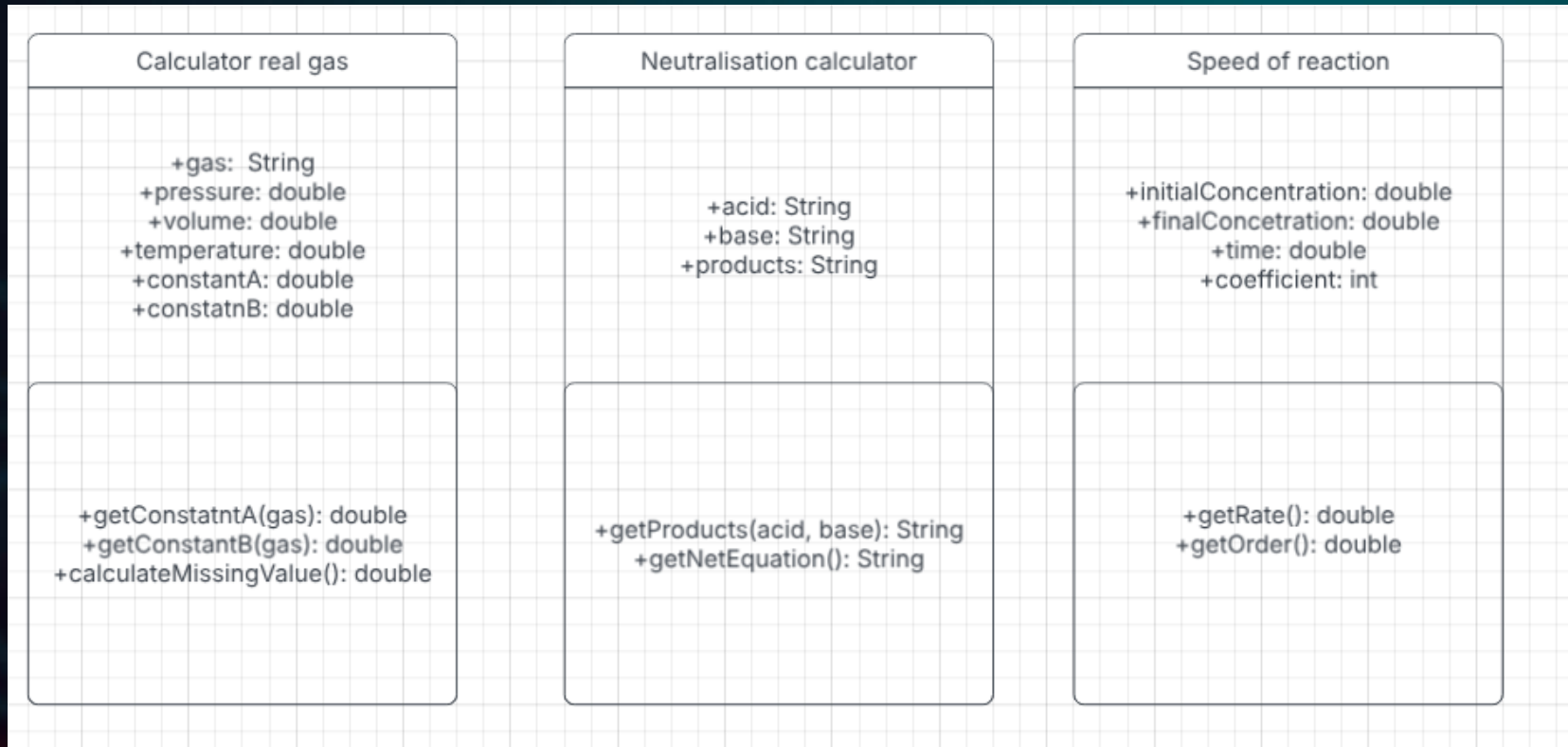
# Deliverable 2

Marco Alturk, Amir Zismanov, Daniel Braguta, Sahon Shaha

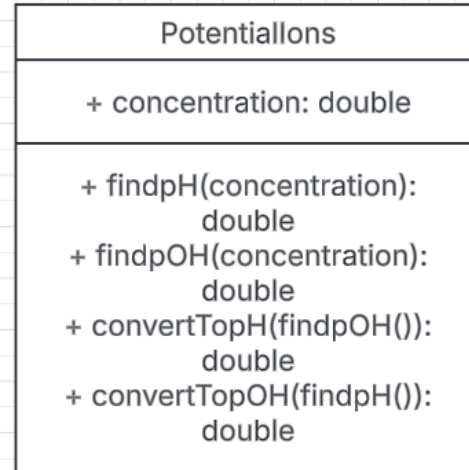
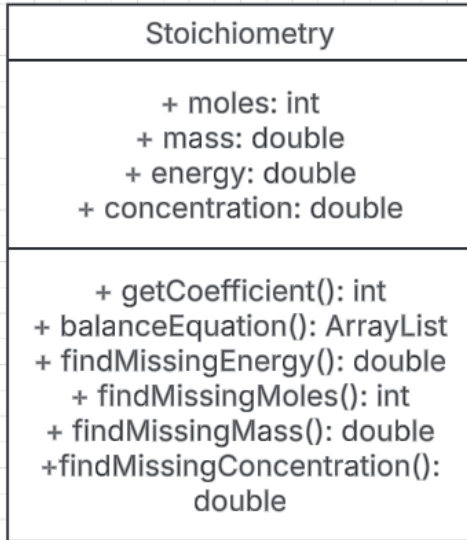
# UML Diagram - Marco



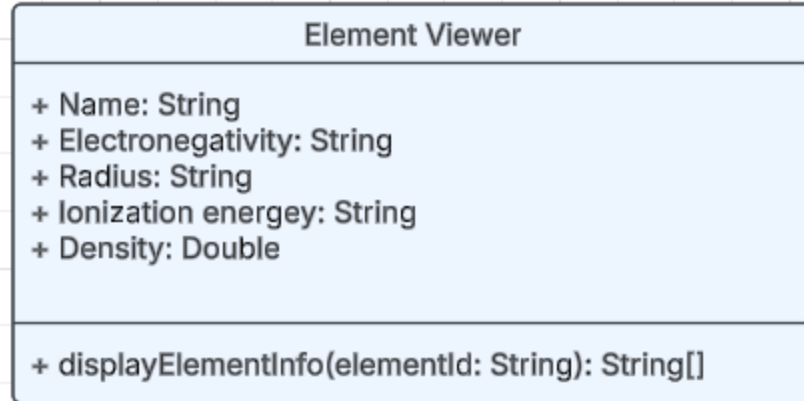
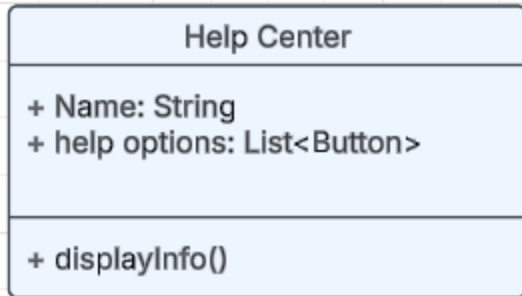
# UML Diagram - Daniel



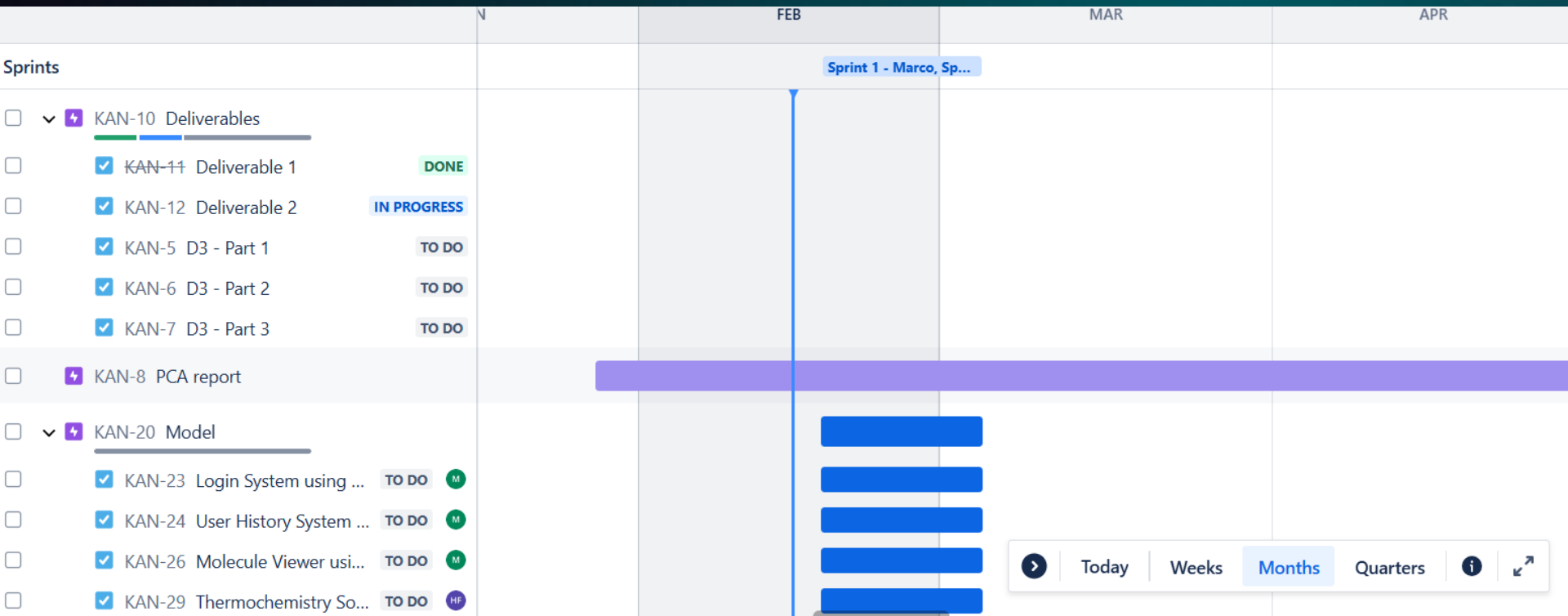
# UML Diagram - Sahon



# UML Diagram - Amir



# Jira Timeline



## All sprints

M

HF

SS

Epic ▾

Label ▾

Sprint ▾

TO DO 49

IN PROGRESS

DONE ✓



▼ M marco.py (11 issues)

Create Login System using  
Firebase

VIEW 5

✓ KAN-19

M

User History System using  
Firebase: User history data  
(activities, results) stored in  
Firebase.

MODEL 3

✓ KAN-24

M

Login System using Firebase:  
User credentials and  
authentication data (stored in  
Firebase).

MODEL 3

✓ KAN-23

M

Create User History using  
Firebase

VIEW 2

✓ KAN-25

M

# Backlog - Marco

☐ ▼ Sprint 1 - Marco 18 Feb – 4 Mar (11 issues)

11 0 0

Complete sprint

...

✓ KAN-19	Create Login System using Firebase	VIEW	TO DO ▼	M
✓ KAN-24	User History System using Firebase: User history data (activities, results) stored in Firebase.	MODEL	TO DO ▼	M
✓ KAN-23	Login System using Firebase: User credentials and authentication data (stored in Firebase).	MODEL	TO DO ▼	M
✓ KAN-25	Create User History using Firebase	VIEW	TO DO ▼	M
✓ KAN-26	Molecule Viewer using API: Molecule data fetched from the API (e.g., chemical structures, properties).	MODEL	TO DO ▼	M
✓ KAN-27	Login System using Firebase	CONTROLLER	TO DO ▼	M
✓ KAN-33	User History using Firebase	CONTROLLER	TO DO ▼	M
✓ KAN-55	Molecule Viewer using API	CONTROLLER	TO DO ▼	M
✓ KAN-30	Create Molecule Viewer using API	VIEW	TO DO ▼	M
✓ KAN-65	Password Changer	MODEL	TO DO ▼	M
✓ KAN-70	Sound Effects to Button Clicks/Events	CONTROLLER	TO DO ▼	M

+ Create issue



# Backlog - Daniel

☐ **Sprint 2 - Daniel** 18 Feb – 4 Mar (14 issues)

14 0 0

Complete sprint



<input checked="" type="checkbox"/> KAN-29	Thermochemistry Solver using an Algorithm: Thermochemical data processing and calculations (heat capacity, enthalpy, etc.).	MODEL	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-31	Neutralization Acid-Basic Balancer: Algorithm that balances acid-base neutralization reactions.	MODEL	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-32	Constants/Values found using a Web Scraper: Constants/chemical values fetched from web scraping (e.g., periodic constants).	MODEL	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-34	Graph with the K Constant + Speed of Reaction: Data related to the reaction rate constant (K) and speed of reaction.	MODEL	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-61	Create Thermochemistry Solver using an Algorithm	VIEW	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-62	Thermochemistry Solver using an Algorithm	CONTROLLER	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-63	Neutralization Acid-Basic Balancer	VIEW	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-44	Neutralization Acid-Basic Balancer	CONTROLLER	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-45	Constants/Values found using a Web Scraper	VIEW	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-46	Graph with the K Constant + Speed of Reaction	CONTROLLER	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-39	Ideal and Real Gas Calculator: Gas law algorithms (e.g., Ideal Gas Law, Real Gas calculations).	MODEL	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-49	Graph with the K Constant + Speed of Reaction	VIEW	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-50	Ideal and Real Gas Calculator	CONTROLLER	TO DO ▾	HF
<input checked="" type="checkbox"/> KAN-53	Ideal and Real Gas Calculator	VIEW	TO DO ▾	HF

+ Create issue

# Backlog - Sahon

☐ ▾ Sprint 3 - Sahon 18 Feb - 4 Mar (13 issues)

13 0 0

Complete sprint

...

✓ KAN-28	Stoichiometry Solver using an Algorithm: Algorithm that balances chemical equations.	MODEL	TO DO ▾	SS
✓ KAN-35	pH and poH Calculator using an Algorithm: Algorithm for calculating pH and pOH based on concentration.	MODEL	TO DO ▾	SS
✓ KAN-41	Stoichiometry Solver using an Algorithm	CONTROLLER	TO DO ▾	SS
✓ KAN-47	pH and poH Calculator using an Algorithm	CONTROLLER	TO DO ▾	SS
✓ KAN-37	Create Stoichiometry Solver using an Algorithm	VIEW	TO DO ▾	SS
✓ KAN-51	pH and poH Calculator using an Algorithm	VIEW	TO DO ▾	SS
✓ KAN-59	Thermochemistry Solver using an Algorithm: Thermochemical data processing and calculations (heat capacity, enthalpy, etc.).	MODEL	TO DO ▾	SS
✓ KAN-60	Neutralization Acid-Basic Balancer: Algorithm that balances acid-base neutralization reactions.	MODEL	TO DO ▾	SS
✓ KAN-40	Create Thermochemistry Solver using an Algorithm	VIEW	TO DO ▾	SS
✓ KAN-42	Thermochemistry Solver using an Algorithm	CONTROLLER	TO DO ▾	SS
✓ KAN-43	Neutralization Acid-Basic Balancer	VIEW	TO DO ▾	SS
✓ KAN-64	Neutralization Acid-Basic Balancer	CONTROLLER	TO DO ▾	SS
✓ KAN-68	Volume Settings	VIEW	TO DO ▾	SS

+ Create issue

# Backlog - Amir

☐ **Sprint 4 - Amir** 18 Feb - 4 Mar (11 issues)

11 0 0

Complete sprint



☒ KAN-36 Periodic Table Viewer (Dropdown Sorting system): Data for the periodic table, including electronegativity, atomic radius, etc.

MODEL

TO DO ▾



☒ KAN-48 Periodic Table Viewer (Dropdown Sorting system)

CONTROLLER

TO DO ▾



☒ KAN-52 Periodic Table Viewer (Dropdown Sorting system)

VIEW

TO DO ▾



☒ KAN-54 Molecule Viewer using API: Molecule data fetched from the API (e.g., chemical structures, properties).

MODEL

TO DO ▾



☒ KAN-38 Molecule Viewer using API

CONTROLLER

TO DO ▾



☒ KAN-56 Create Molecule Viewer using API

VIEW

TO DO ▾



☒ KAN-57 Create Login System using Firebase

VIEW

TO DO ▾



☒ KAN-58 Create User History using Firebase

VIEW

TO DO ▾



☒ KAN-66 Theme Changer Using CSS

VIEW

TO DO ▾



☒ KAN-67 Text Font/Size Changer

VIEW

TO DO ▾



☒ KAN-69 User Guide

VIEW

TO DO ▾



+ Create issue

## Login

Email

User Name

Password



Log in

Don't have an account? [Sign up](#)

## Sign Up

Email

User Name

Password



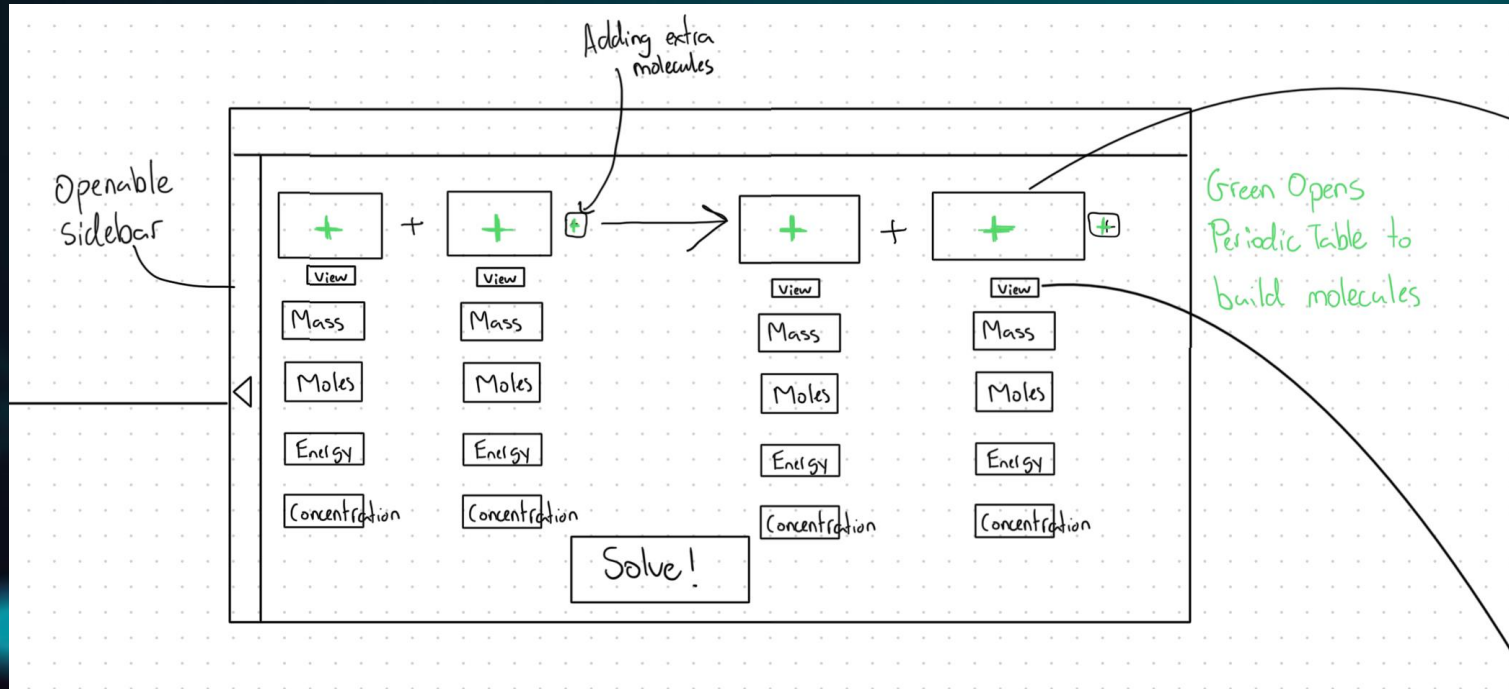
Password (again)



Sign Up

Already have an account? [Log In](#)

# Main Screen

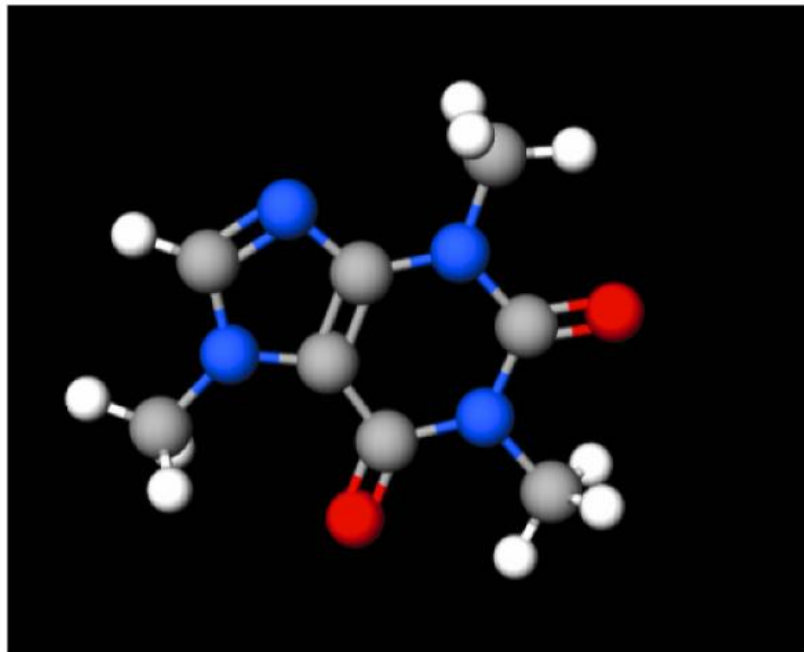


## Build a Molecule

[Visualize Molecule](#)[Balance Equation](#)[Neutralize Acids and Bases](#)[Calculate Heat Transfer](#)[Calculate pH and pOH](#)

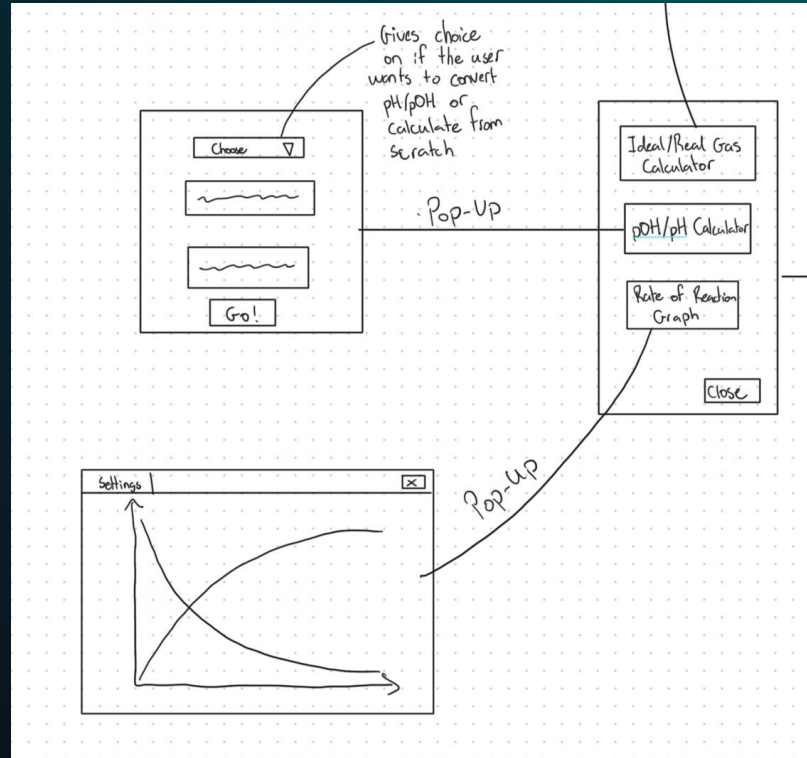
1 H Hydrogen																	2 He Helium														
3 Li Lithium	4 Be Beryllium															5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon										
11 Na Sodium	12 Mg Magnesium															13 Al Aluminium	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon										
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton														
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon														
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon														
87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Nh Nihonium	114 Fl Flerovium	115 Mc Moscovium	116 Lv Livermorium	117 Ts Tenness	118 Og Oganesson														
																		58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
																		90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

# 3D molecule Viewer





# Graph and pH/pOH Calculator



## Neutralization calculator

+   →

SOLID  
AQUEOUS  
GAS



## Help Center

How to build a molecule ?

How to build an equation ?

How to calculate heat transfer ?

How to calculate pH and pOH ?

How to visualize 3D molecule?

How to change your password ?

## Settings



Toggle Sound Effects



Dark Mode



14 Font Size



Log Out

Reset Password

Delete Account

# Input/Output Table

Input	Output
Selected Atoms	Balanced Chemical Equation with Reactants and Products
Mass, Concentration, Moles, Concentration, Energy	Missing Mass, Concentration, Mole and Concentration, Energy
Concentration, pH/pOH	pH or pOH
Van der Waals constants (a & b), Pressure + units, Volume, moles, temperature	One of the missing inputs
Balanced chemical reaction, States of the reactants	Net ionic equation
Concentration and Moles	K Constant with Graph
Selected molecule	3D visualization of the molecule
Clicks on settings page	Help for the user