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# Analysis

The Rubik’s cube was created by Ernö Rubik at the department of interior design at the academy of applied arts and crafts in Budapest. He created the cube to help his students understand 3D objects and its main purpose is to solve the structural problem of moving the parts independently without the whole structure falling apart. He did not realise this but by showing his class the movement of the model he was scrambling a puzzle. This was then later released as the ‘magic cube’ and then later renamed to the “Rubik’s cube”.

The program I am going to design will have multiple functionalities such as:

* creating a virtual 3d model of a Rubik’s cube which the user can manipulate.
* The program being able to take inputs from the user to create their own pattern/combination on the cube.
* Once the cube has been manipulated or inputted it can be solved by the program

I have chosen this problem as It gives people the ability to learn how a Rubik’s cube works and functions without any consequences of scrambling a puzzle, they cannot solve of which they can also do virtually which appeals to younger minds.

## Similar programs:

Ruwix online Rubik’s cube solver:

[Rubik's Cube and Twisty Puzzle Wiki - Ruwix](https://ruwix.com/)

On this website there are many different sections to do with the Rubik’s cube two of those being a 3d simulation of the cube and the other being a solver which produces the algorithm to solve the users input. The one limitation of this site is that it does not incorporate the two together.

## Objectives:

* Create a functional 3d simulation of a Rubik’s cube.
* Have the program take inputs from the user to create a user created pattern.
* To solve the cube from the user input