**CFOP Algorithm:**

[CFOP Speedsolving Method (jperm.net)](https://jperm.net/3x3/cfop)

Has four stages:

1. Cross
2. F2L
3. OLL
4. PLL

ASSUMPTIONS:  
- Cube oriented with white side down and yellow side up and blue at front

Cube Object:

* Cube’s faces are stored in an ADT as a 3D vector. Front, Back, Left and Right sides are entered by first rotating the cube to that side (do not flip the cube while rotating), then entering the pieces of the face in the following order:

A cube with numbers and arrows

Description automatically generated

* Enter the faces in the following order of their centre pieces: Yellow, White, Orange, Red, Blue, Green (i.e.: Face with yellow centre piece, then face with white centrepiece, etc).
* Colors of pieces should be entered as follows:
* Yellow = y (or Y)
* Orange = o (or O)
* Red = r (or R)
* Green = g (or G)
* Blue = b (or B)
* White = w (or W)
* Cube = 3D Vector (vectorOfCube<vectorsOfSides<Pieces>)
* Cube object will consist of 6 individual 2D vectors; each represents one side of the cube
* Can perform the following actions on the cube + sides that will change:

1. F/F’: Front, Left, Right, Top, Bottom
2. B/B’ : Back, Left, Right, Top, Bottom
3. R/R’ : Right, Front, Back, Top, Bottom
4. L/L’ : Left, Front, Back, Top, Bottom
5. U/U’ : Top, Front, Back, Left, Right
6. D/D’ : Bottom, Front, Back, Left, Rights

***Cross:***

Identify white edge pieces on each side (except top/bottom) and move them down.

Testing:

**Scramble:** B2 L R' F U L U F2 R D2 L2 R2 U' F' L R2 U2 B' F' D B U' D2 F B2 F’

**Cube Layout:**

WRRRYRYOG

YWBYWOYBG

BGGROBRGB

OBYOROOWW

OYWWBBOGW

BYRGGWRYG