Process:

Step 1: I have created three functions `visualize, resize, rotate_image for :`

```
visualize() #visualizing the image
resize() #Resizing the image
rotate_image() #Rotating the image at any angle
```

Step 2: From the paper **"Seam Carving for Content-Aware Image Resizing" section 3.2,** I have calculated image energy functions for forward energy and backward energy at the function `forward_energy` and `backward_energy` function in the code for the given input image.

Step 3: Added a vertical seam to a 3-channel color image at the indices provided by averaging the pixels values to the left and right of the seam.

Step 4: I have used DP algorithm for finding the seam of minimum energy.

Step 5: Then I have implemented the main algorithm at `seams_removal` and `seams_insertion` function.

Step 6: Then I have made our most important function `seam_carve` for getting output.

Run the program:

To run the program firstly I needed to install the required libraries:

- OpenCV
- scipy
- numba
- numpy

Then

```
python main.py -resize -im IM -out OUT [-mask MASK]
[-rmask RMASK] [-dy DY] [-dx DX] [-vis]
Example:
python main.py -resize -im demos/image.jpg -out ratatouille_resize.jpg -mask
mask.jpg -dy 20 -dx -200 -vis
```

NB: *-dy and -dx are respectively the value horizontal seams to add or subtract and vertical seams to add or subtract.*