Airport Construction

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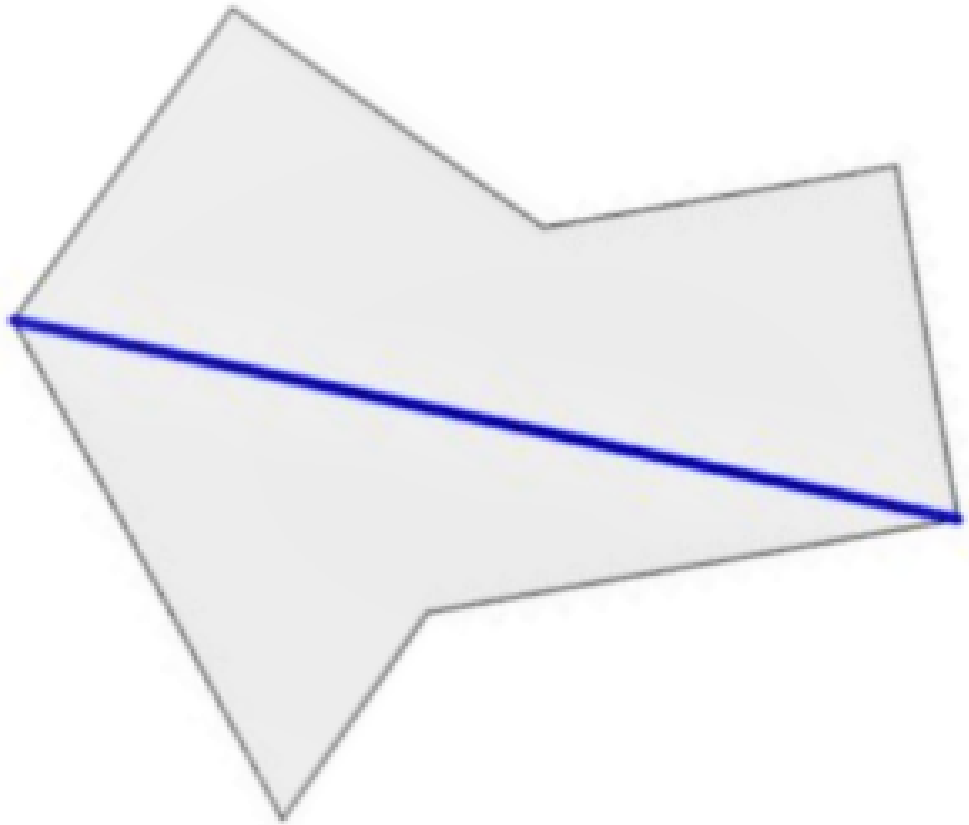
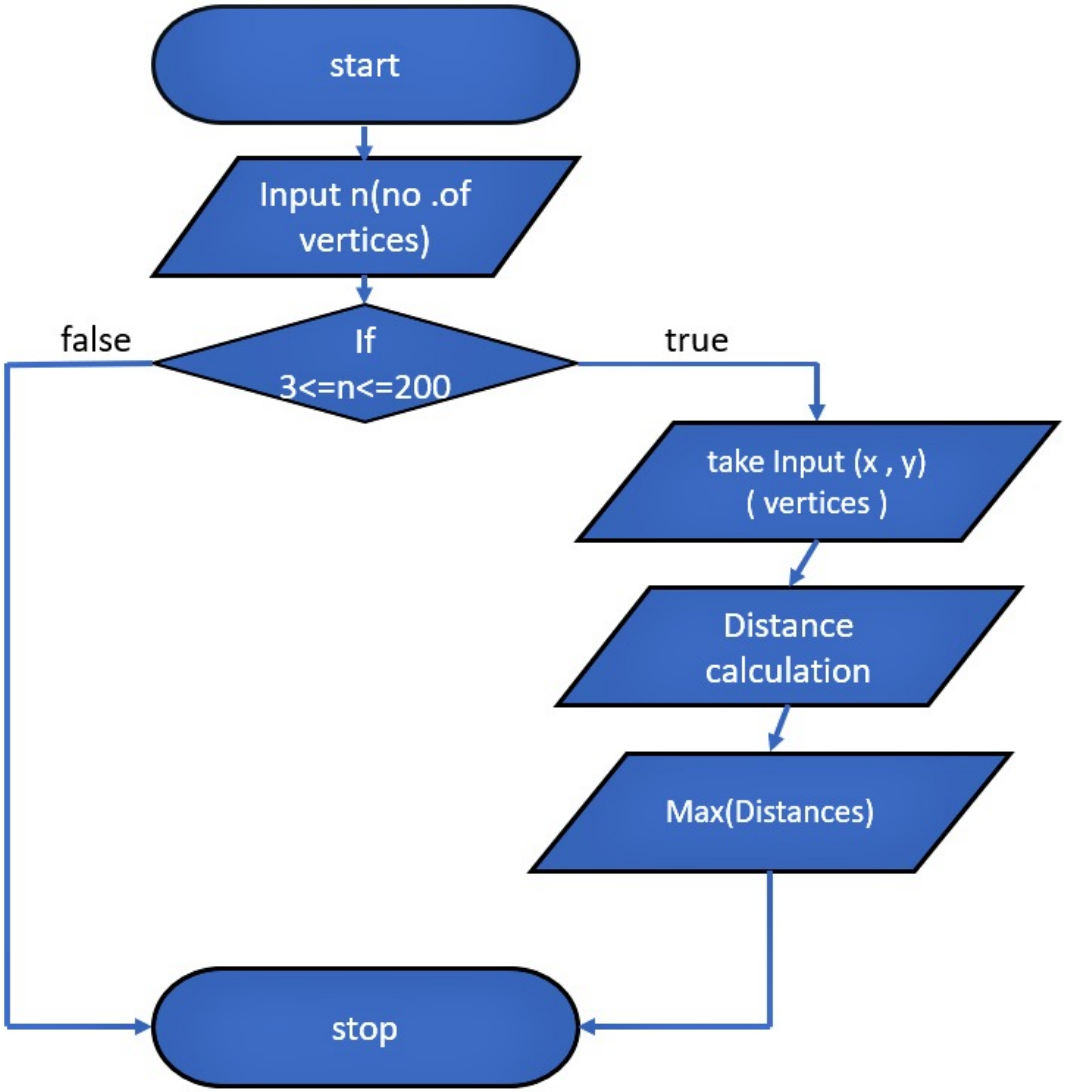
26 March 2021

Project Description

- Model the boundary of Island as a polygon and compute the length of the longest landing strip that can be built on the island.



Approach


start
Input n(no .of vertices)
If 3<=n<=200
false
true
take Input (x , y) (vertices)
Distance calculation
Max(Distances)
stop

Learnings

- itertools and combinations
- Gitlab

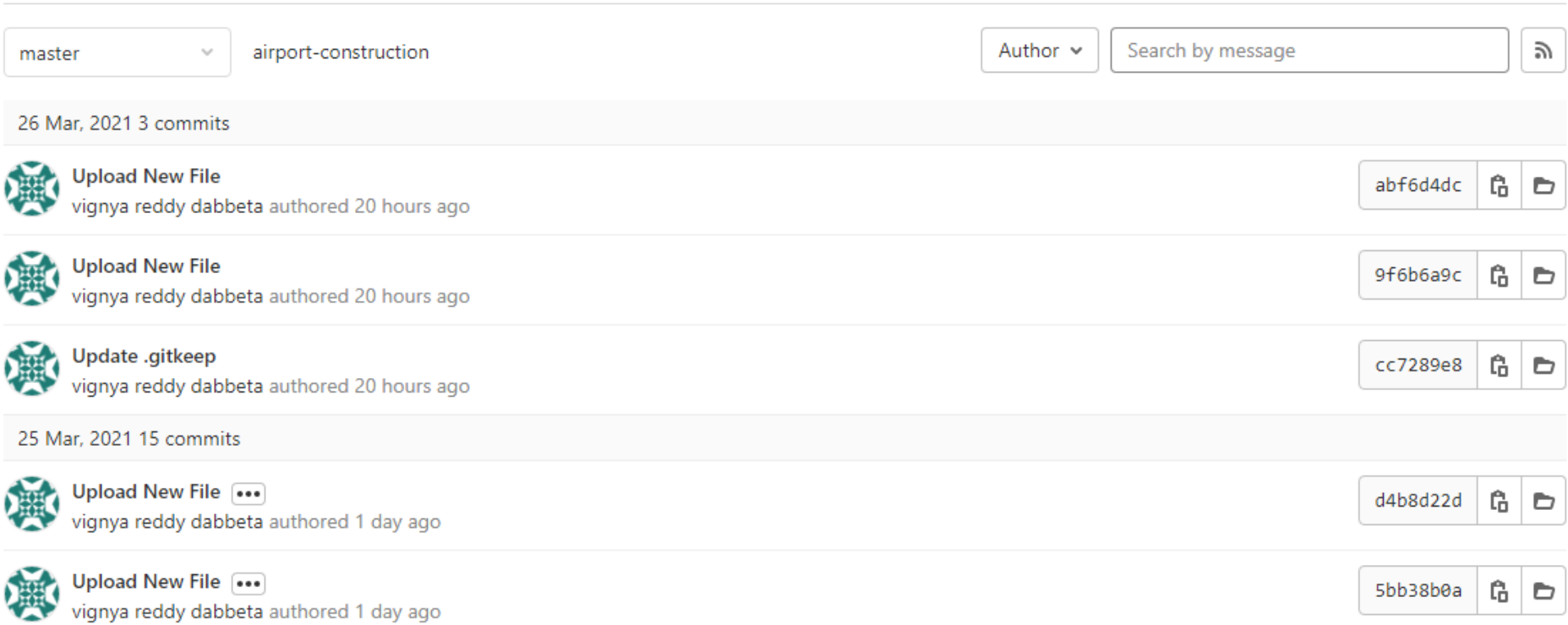
Challenges

- No two edges of the polygon intersect or touch, except that consecutive edges touch at their common vertex.

Statistics

- No .of lines of code:25
- No .of functions:2

GIT Repo


master
airport-construction
Author
Search by message
26 Mar, 2021 3 commits
Upload New File
vignya reddy dabbeta authored 20 hours ago
abf6d4dc
Upload New File
vignya reddy dabbeta authored 20 hours ago
9f6b6a9c
Update .gitkeep
vignya reddy dabbeta authored 20 hours ago
cc7289e8
25 Mar, 2021 15 commits
Upload New File
vignya reddy dabbeta authored 1 day ago
d4b8d22d
Upload New File
vignya reddy dabbeta authored 1 day ago
5bb38b0a

Project Demo

```python
#To find the largest distance between vertices of polygon
from itertools import combinations
from math import sqrt
def polygon_max_dist(n):    # n - number of vertices
    if n in range(3,201):
        coordinates = []    # coordinates - It is a list where coordinates will be stored
        for i in range(n):
            coordinates.append(tuple(int(x) for x in input().split(',')))  # x - input
        distance_list= []   # distance_list - Distances will be stored
        for i in combinations(coordinates,2):
            max_distance = sqrt((i[1][0]-i[0][0])**2 + (i[1][1]-i[0][1])**2)  #distance formula
            distance_list.append(round(max_distance,9))
        print(max(distance_list))
    else:
        print('Number must be in between 3 and 200')


if __name__ == "__main__":
    n=int(input())
    polygon_max_dist(n)
```

References

- https://icpc.global/newcms/worldfinals/problems/2017
- https://docs.python.org/3/library/math.html
- https://gitlab.com/airport-construction/airport-construction
- https://www.tug.org/twg/mactex/tutorials/ltxprimer-1.0.pdf
- https://colab.research.google.com/drive/1MhQOUYGq-N62jioj1S3yXWPZR6Ilc6qC?usp=sharing

THANK YOU