

Optimisation scenarios

Quiz, 6 questions

6/6 points (100%)

✓ Congratulations! You passed!

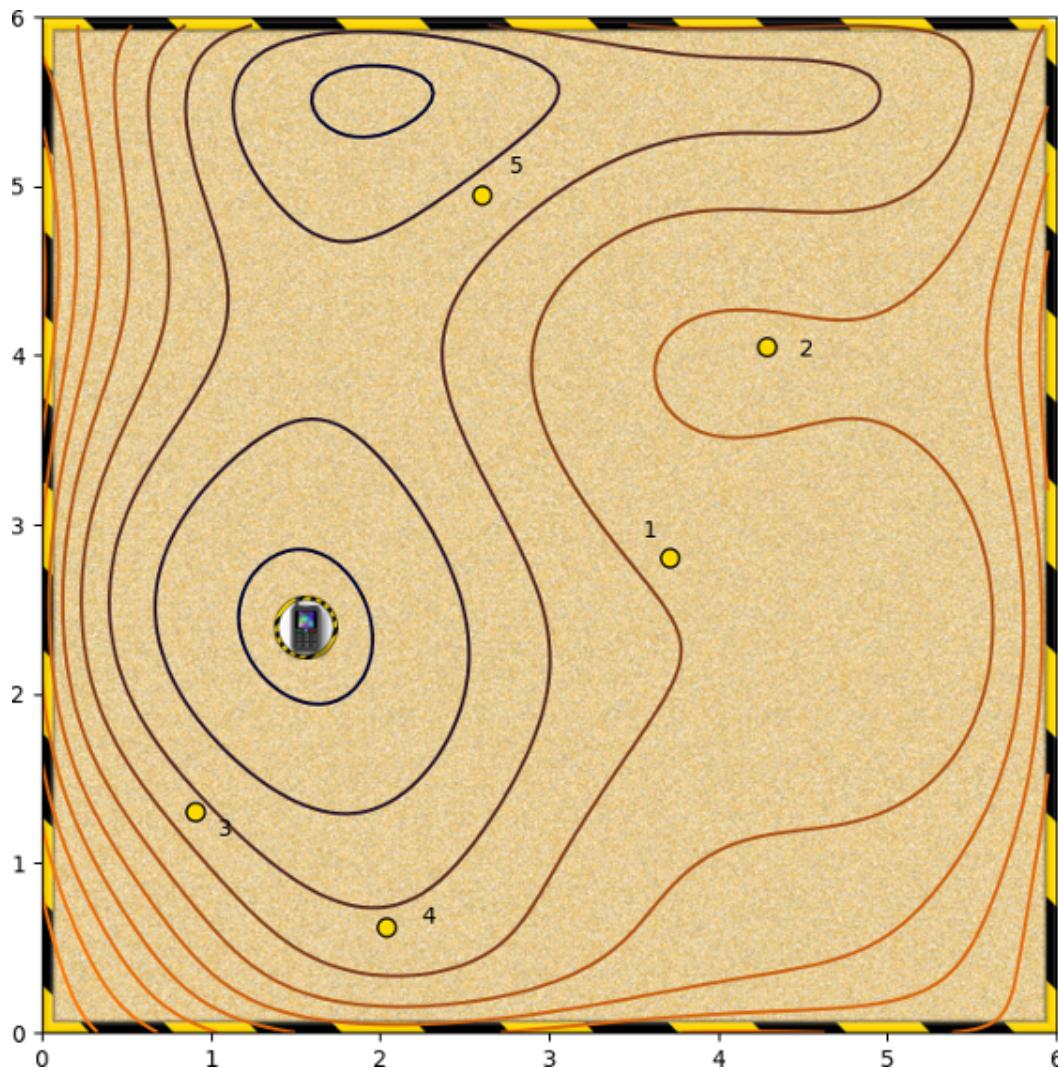
Next Item



1 / 1
point

1.

Given the following contour plot,



Which starting points (from 1 to 5) are likely to converge to the global minimum (shown by the mobile phone) when using a steepest descent algorithm?



Starting point 1

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- Starting point 2

Un-selected is correct

- Starting point 3

Correct

In this case, the algorithm descends smoothly down the slope.

- Starting point 4

Correct

In this case, the algorithm descends smoothly down the slope.

- Starting point 5

Un-selected is correct

- None of the above

Un-selected is correct



1 / 1
point

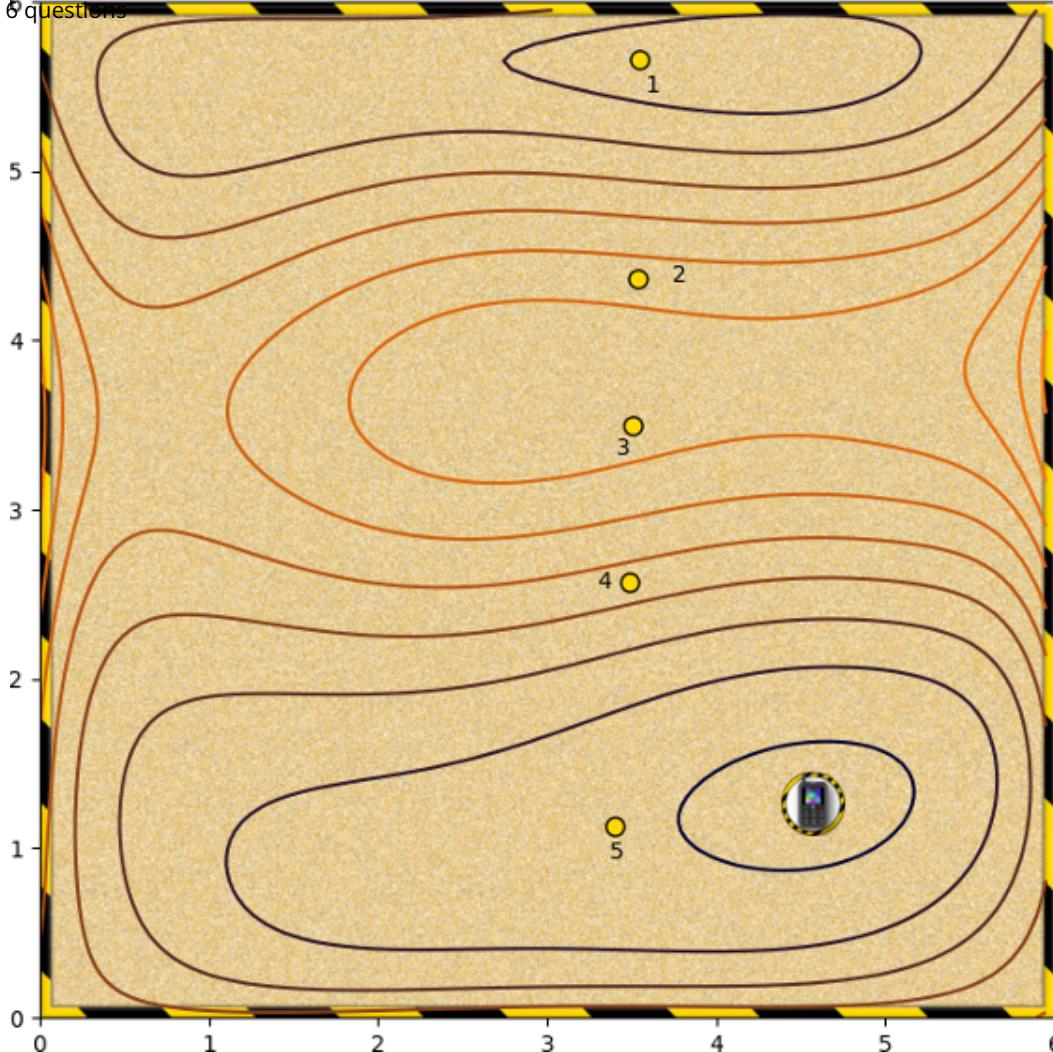
2.

Again, which starting points converge to the global minimum?

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Starting point 1

Un-selected is correct

Starting point 2

Un-selected is correct

Starting point 3

Correct

This should converge to the global minimum.

 Starting point 4

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Correct**6/6 points (100%)**

This should converge to the global minimum.

-
- Starting point 5

**Correct**

This should converge to the global minimum.

-
- None of the above

**Un-selected is correct**1 / 1
point

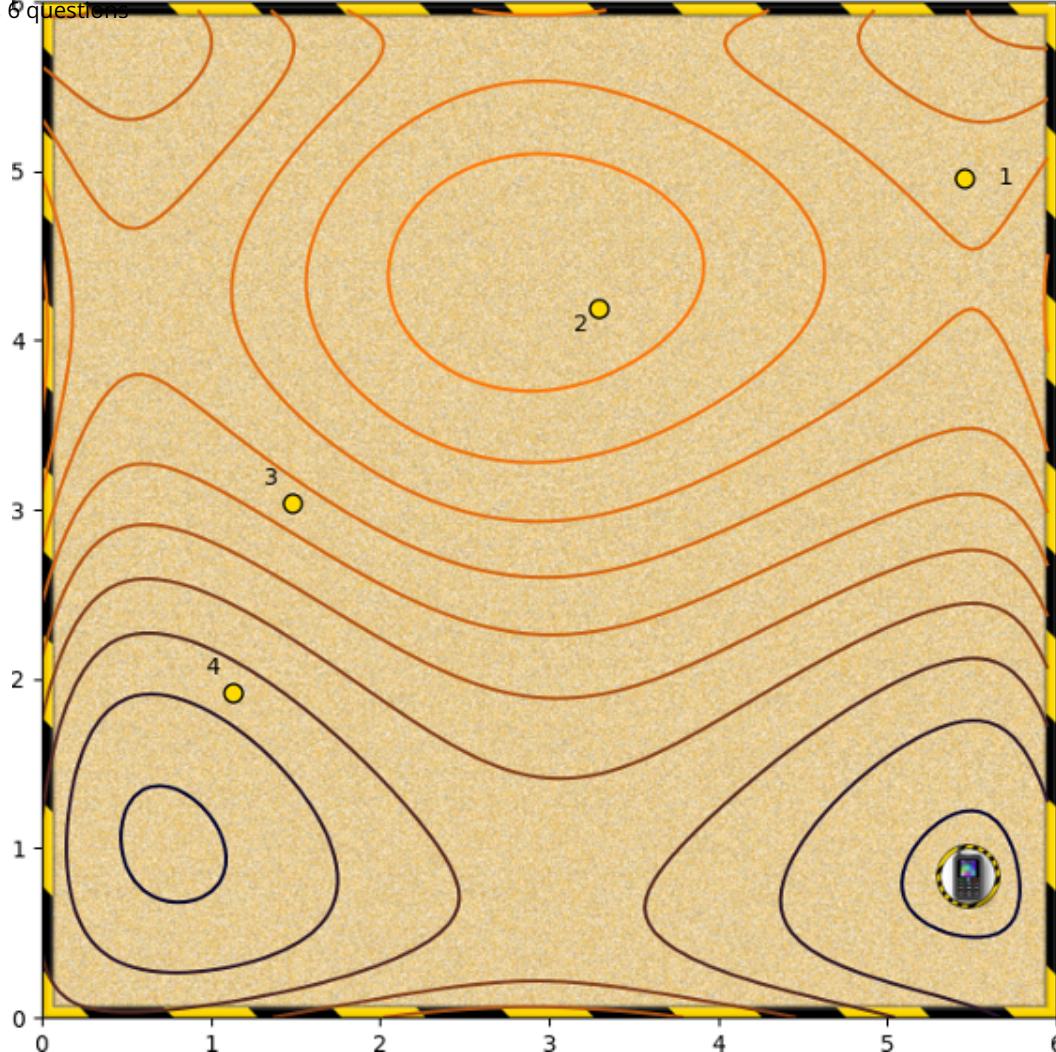
3.

Which starting points converge to the global minimum?

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6/6 points (100%)



Starting point 1

Un-selected is correct

Starting point 2

Correct

From here, the algorithm will descend the hill to the global minimum.

Starting point 3

Un-selected is correct

Starting point 4

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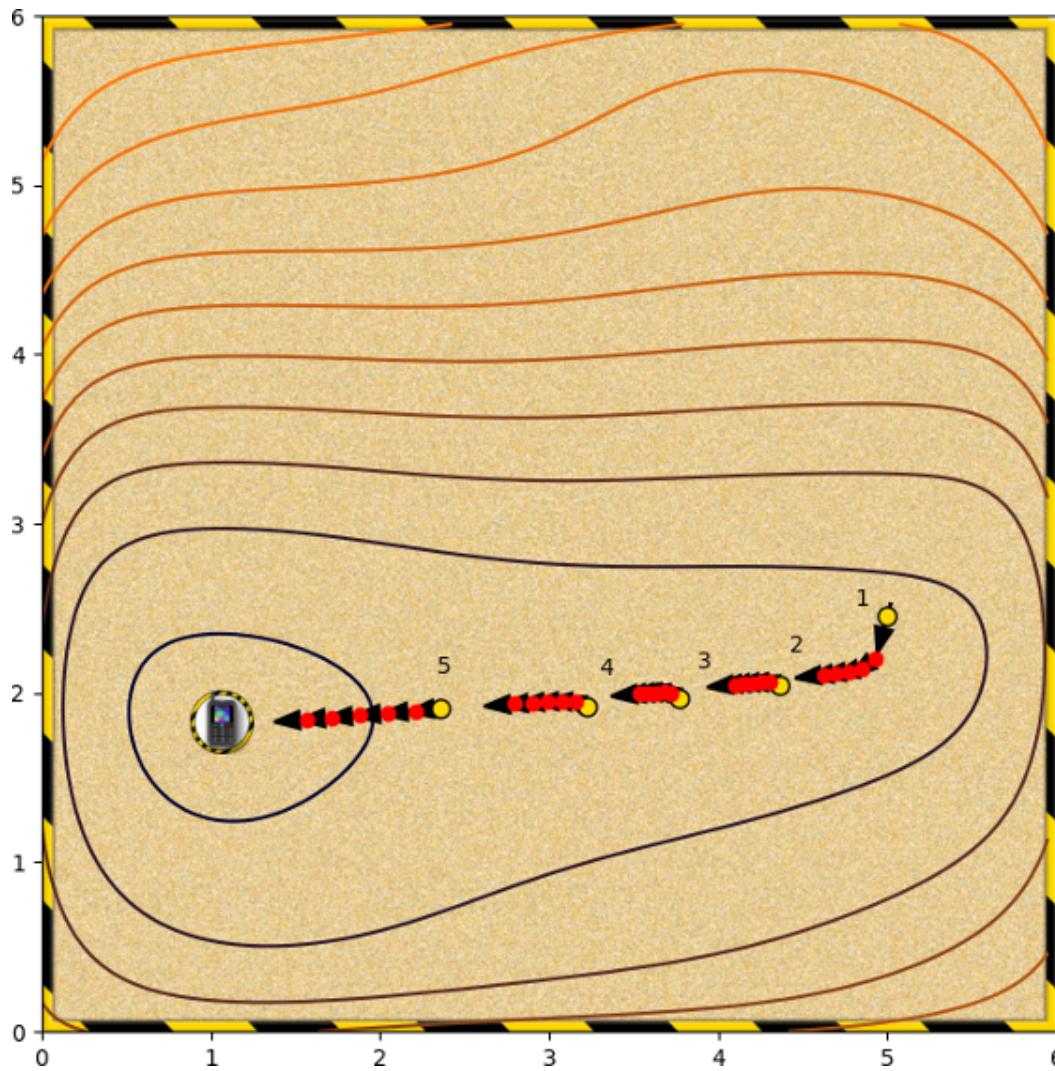
Un-selected is correct**6/6 points (100%)**

None of the above

Un-selected is correct1 / 1
point

4.

What's happening in this gradient descent?



The algorithm is getting stuck near saddle points.

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6/6 points (100%)

Correct

This could be improved by increasing the aggression.

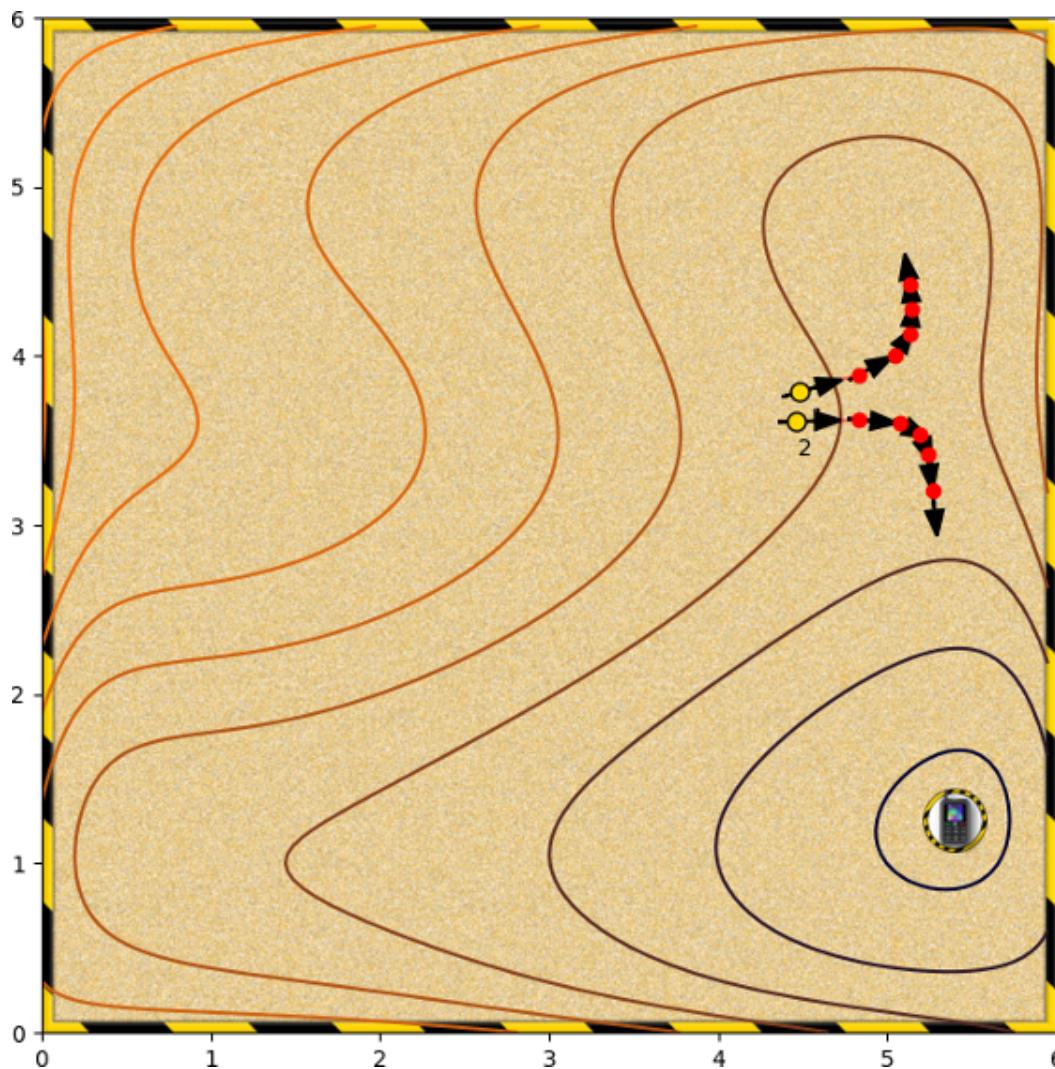
- The algorithm is getting stuck near local minima.
- None of the other options.



1 / 1
point

5.

What is happening here?



There is noise in the system.

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The algorithm is passing either side of a local maximum.

None of the other options.

The algorithm is passing either side of a saddle point.

Correct

The algorithm is passing either side of a local minimum.



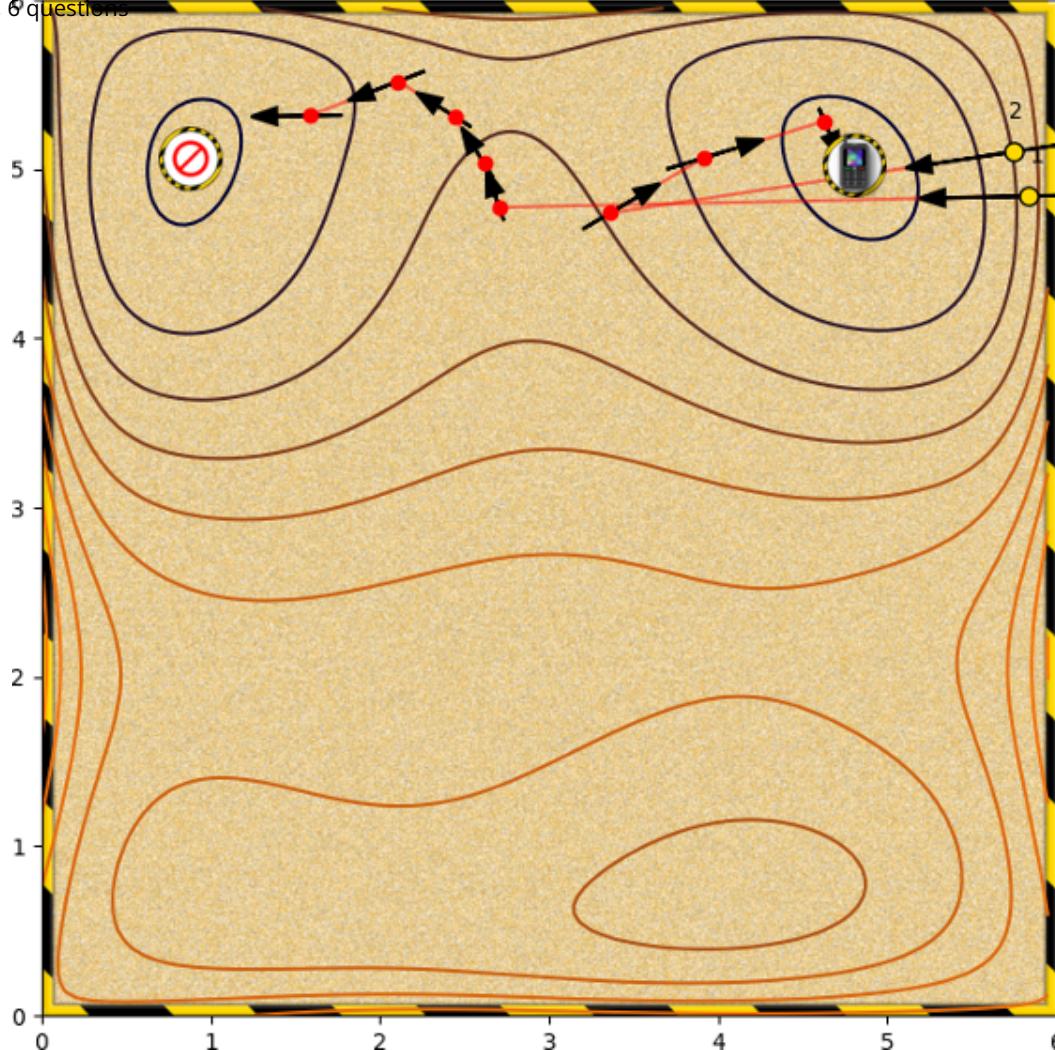
1 / 1
point

6.

What is happening here?
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- The Jacobian at the starting point is very large.

Correct

This is causing the algorithm to overshoot. In one case into a different basin.

- There is noise in the system
- The marked points are saddle points.
- None of the other options.

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