Welcome to Leetcode Study Group!

Before we begin...

- Session materials:
  https://github.com/WomenWhoCode/WWCodePython

- Set your chat to “All panelists and attendees” and share your thoughts there

- Ask any questions using the Q&A button

- Have fun and make some coding friends!

WELCOME

WOMEN WHO CODE

Our Mission

Inspiring women to excel in technology careers.

WOMEN WHO CODE PYTHON

Our Vision

A world where diverse women are better represented as engineers and tech leaders

WOMEN WHO CODE PYTHON

Our Values

+ Focus on the mission
+ Live Leadership
+ Punch above your weight
+ Inclusion at the core

WOMEN WHO CODE PYTHON

Our Target

Engineers with two or more years of experience looking for support and resources to strengthen their influence and levelup in their careers.

WOMEN WHO CODE PYTHON

290,000

Members

70 networks in 20 countries
122+ countries
14K+ events
$1025 daily Conference tickets
$2M Scholarships
Access to jobs + resources
Infinite connections

WOMEN WHO CODE PYTHON

OUR MOVEMENT

As the world changes, we can be a connecting force that creates a sense of belonging while the world is being asked to isolate.

WOMEN WHO CODE PYTHON

Code of Conduct

WWCode is an inclusive community, dedicated to providing an empowering experience for everyone who participates in or supports our community, regardless of gender, gender identity and expression, sexual orientation, ability, physical appearance, body size, race, ethnicity, age, religion, socioeconomic status, caste, creed, political affiliation, or preferred programming language(s).

Our events are intended to inspire women to excel in technology careers, and anyone who is there for this purpose is welcome. We do not tolerate harassment of members in any form. Our Code of Conduct applies to all WWCode events and online communities.

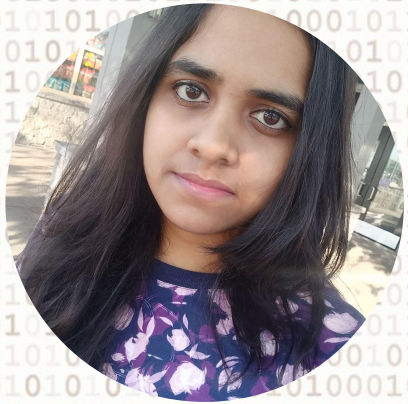
Read the full version and access our incident report form at
womenwhocode.com/codeofconduct

WOMEN WHO CODE PYTHON

LeetCode Study Group

WOMEN WHO CODE PYTHON

Meet Your Team!



Chethana
Lead / Associate Software Engineer

Karen
Lead / Programmer

Today's Agenda

1. Introduction to Backtracking
2. Deep dive of Subsets
    a. Problem Discussion
    b. Test cases
    c. Approaches with time complexity
    d. Live coding
3. Next problems to tackle
4. Q&A

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Backtracking

Quick intro

- Backtracking is a general algorithm that is used to find solutions to computational problems

- How are solutions found?
  - At each iteration/recursion level
  a) Extend the current solution
  b) Correct solution?
    - Yup! Record it somewhere.
    - Nah :/ try to extend it somehow and continue!

Template of some sort?

```
find_solution
    backtrack(call with empty solution, starting index etc)

    backtrack(curr_partial_solution, curr_index)
        if curr_partial_solution is solution
            record it, return
        else
            add to curr_partial_solution
            backtrack(extended_curr_partial_soln, curr_index+1)
            remove from curr_partial_solution
            ...
```

Where and when to use?

- When you have a whole search space which could contain multiple incorrect and correct answers and you'd have to build your way to the correct ones leaving out the incorrect

- Find all combinations, permutations - exhausting the search space or choosing specific candidates for solutions

- Many times it's very slow and more of a brute force but sometimes the brute force solution is good enough

Subsets

Link to problem

*"Given an integer array **nums** of **unique** elements, return all possible subsets (the power set).*

*The solution set **must not** contain duplicate subsets. Return the solution in **any order**"*

Simplifying that

- Subset?
  Eg,. [1, 2] => [ ], [1], [2], [1, 2]
- Power set?
  => Set of all subsets within set S

- Input -> `nums = [1, 2, 3]`
- Output -> power set of nums
- Solution can be in any order and no duplicates

Let's Code!

https://replit.com/@codernewbie/WWCodePythonLeetcode

Next steps from here

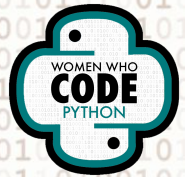
Word Search

“ Given an `m x n` grid of characters `board` and a string word, return `true` if `word` exists in the grid.“

Letter Combinations of a Phone Number

“ Given a string containing digits from `2-9` inclusive, return all possible letter combinations that the number could represent. Return the answer **in any order** ”

(Also, all subsets, permutations, combination sum variations on Leetcode)



QnA Time!

Useful Links

- Leetcode Study group repo
- Repl link
- Mock interview - Pramp
- Leetcode Weekly contest (and biweekly)

Stay Connected!

WOMEN WHO CODE PYTHON

JOIN US ON SOCIAL MEDIA!

@WWCODEPYTHON

WOMENWHOCODE.COM/PYTHON

Last few Sessions

- ➔ Feb 3 - Bonus session 1
- ➔ Feb 17 - Bonus session 2

Upcoming Events

FRI 21 JAN
✨A Hitchhikers Guide to Publishing Research Articles✨ *Featured*
Online | Data Science | 11:00 AM – 12:00 PM EST (UTC-0500)
Organized By: WWCode Data Science | WWCode Python
Register

SAT 22 JAN
✨ Development to Deployment of a Web Application with Python ✨ *Featured*
Online | Python | 12:30 PM – 2:00 PM EST (UTC-0500)
Organized By: WWCode Python
Register

TUE 25 JAN
✨ Introduction to Qt: How to Create Your First Interface ✨ *Featured, Recurring*
Online | Python | 9:00 PM – 10:30 PM EST (UTC-0500)
Organized By: WWCode Python
Register

Register at: https://www.womenwhocode.com/python/events

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Thank You for Joining!