SRE INTERVIEW PREPARATION

Programming

- Python basics (skip videos if you already know the concepts)
  - https://www.youtube.com/watch?v=mHtjvDEdlas&list=PLhqPDa2HoaAZN9pG0cUugTmgAddRtF3zK
- Solve basic questions in Python - hackerrank easy
- In case you are stuck in any problem, look at the editorial, discussions and other's solutions for help. Use google search for help. Follow this rule for every question.
- Advanced Python tutorial
  - https://www.youtube.com/watch?v=QLTdOEn79Rc&list=PLqnslRFeH2UqLwzS0AwKDKLrpYBKzLBy2
- Solve more advance level questions
  - hacker rank advance easy
  - hacker rank advance medium
- Classes in Python
  - https://youtube.com/playlist?list=PL-osiE80TeTsqhIuOqKhwlXsIBIdSeYtc
- DSA with Python
  - https://youtube.com/playlist?list=PLzgPDYo_3xukPJdH6hVQ6lic7KiJuoA-l
- Take 30 day coding challenge
  - https://www.hackerrank.com/domains/tutorials/30-days-of-code
- Solve more basic DSA questions gain more confidence
  - Leetcode basic free questions
- After solving problems in the links given, you should be good with the basics of Python and DSA.
- If you want to solve more DSA problems
  - https://workat.tech/problem-solving/practice/topics
  - Start with easy problems first in the topic you select
- Python scripting
  - https://youtube.com/playlist?list=PLckUzKjgYDgaMCzGIvdcyOlcUTx1sBBtR (Complete till 14th video)
  - This will require basic knowledge of operating systems and networking.
  - This is helpful if you are interested in DevOps/SRE areas.

Operating system basics

- Operating system basics - https://www.youtube.com/watch?v=0UvZ2BPIPX0&list=PLhqPDa2HoaAZLws7PFYWl4MnzCyHf8do- (These videos should be more than enough for interviews)
- Linux kernel development by Robert Love is one of the best books to read for diving into the internals of Linux. (optional)
- The end goal here is to understand how the operating system works.
- After going through the above video, you should be able to explain:
    - What is OS? Difference between OS and kernel
    - Intro to Linux, Linux distributions
    - System calls
    - Interrupts and signals
    - Process management
        - Program vs Process
        - Process states and PCB
        - Process scheduling and context switch
        - Process creation - fork(), exec(), wait()
        - Zombie and orphan process
        - Process vs Threads
    - Race condition, deadlock, mutex, and semaphore
    - Memory management
        - Logical address vs physical address
        - Paging
        - Virtual memory
        - TLB
    - File system management
        - Files, directories, special files, links, sockets
        - File system layout
        - Proc file system
        - VFS
        - Common file operations - read, write, append, open, close
        - Inodes
        - Volumes and partition
        - RAID
- Detailed topics list - https://docs.google.com/document/d/1Vy2EUAgIShloS6gcSWPdVCg5vhsYWZHl686h9xAkYOA

Linux commands

- https://www.digitalocean.com/community/tutorials/linux-commands
- The above link should be enough to cover basic Linux commands.
- Try to practice all the commands on your system. If you do not have Linux on your system, install it by dual boot or use a virtual machine. Install red hat Linux.
- After covering the above videos and blogs, you should be comfortable with the concepts below.
- What happens when you run a command - https://youtu.be/sL7h1rOn0K0
- Reading manual pages - man command
- File system navigation
    - cd
    - pwd
    - ls
    - less
    - more
    - file
    - tail
    - head
    - cat
- Manipulating files
    - cp
    - mv
    - rm
    - mkdir
    - touch
    - echo
- Users and groups
    - useradd
    - passwd
    - usermod
    - userdel
- Sudo user
- File permissions
    - chmod
    - chown
    - chgrp
- I/O redirection and pipes
- sort, uniq, awk, sed, grep
- ssh, scp, smtp
- Package management
- Process management commands
    - /proc/PID/

    - top
    - ps
    - Background and foreground process - fg, bg, jobs
    - Kill
- Memory management commands
    - /proc/meminfo
    - free
    - Vmstat
- File system management
    - Searching files - find
    - Disk usage - df
    - Files usage - du
- Networking commands
    - Application layer - telnet, curl, wget, ssh, sftp, scp, dig, nslookup
    - Transport layer - nc, tcpdump, netstat(ss)
    - Network layer - ping, traceroute, route, ip addr, iptables, nmap
    - Data link layer - arp
- Managing system services - systemd
- Detailed list of topics - https://docs.google.com/document/d/1BCJ3iRYAif4MGxEn9j5N6dyu8-0YGA5xgHq-ldnV3po/

Computer networking

- Computer networking basics - https://www.youtube.com/playlist?list=PLhqPDa2HoaAYYXjiIdRsf5-tKmJUlZx4o
- Computer networking animation videos - https://www.youtube.com/playlist?list=PLhqPDa2HoaAYXaCph61kioSbJS7lwcwUt
- Focus on understanding the following:
    - Layers in TCP/IP model
    - Functions of each layer
    - How these layers help in moving data from one machine to another
    - Application layer protocols like HTTP, DNS, SSH, HTTPS, TLS, etc
    - Transport layer protocols like TCP and UDP
        - Difference between TCP and UDP
        - TCP 3-way handshake
        - TCP connection termination
    - Network layer - subnet, CIDR, and IP addresses
    - Other networking protocols like ICMP, DHCP, ARP, etc are important

        - After reading the above, you should be able to answer what happens when you type www.google.com on your browser and hit enter? - https://jvns.ca/networking-zine.pdf
        - Networking commands like telnet, curl, dig, ping, traceroute, netcat etc
- Detailed list of topics - https://docs.google.com/document/d/1S84HYWNL52ZUdcoweOWiBBcJcWlxc7RTrzK03SVKqVg

System design

- System design basics by Gaurav Sen(must watch) - https://www.youtube.com/watch?v=xpDnVSmNFX0&list=PLMCXHnjXnTnvo6alSjVkgxV-VH6EPyvoX
- System design primer(examples + concepts) - https://github.com/donnemartin/system-design-primer
- Go through both the links above
- Designing a distributed system - https://youtu.be/ohtqI3AHR0k
- Focus on understanding the following:
    - How do big companies design their infrastructure?
    - Important concepts:
        - Load balancer
        - Vertical vs horizontal scaling
        - Reverse proxy
        - CDN
        - What is reliability?
        - CAP theorem
        - Caching
        - Database
            - sql vs nosql databases
            - ACID properties
            - Database sharding
            - Database replication
        - Full list - https://github.com/donnemartin/system-design-primer#system-design-topics-start-here

System troubleshooting

- Debugging performance issues on a single server
    - https://syedali.net/2013/08/20/linux-troubleshooting-tools/

    - https://netflixtechblog.com/linux-performance-analysis-in-60-000-milliseconds-accc10403c55
- How to troubleshoot issues in production
    - https://sre.google/sre-book/effective-troubleshooting/ [must read]
- Read Julia Evans zines/blogs on debugging [must read]
    - https://jvns.ca/debugging-zine.pdf
    - https://jvns.ca/perf-zine-print.pdf
    - https://jvns.ca/tcpdump-zine.pdf
    - https://jvns.ca/debugging-zine.pdf
    - https://jvns.ca/strace-zine-v3-print.pdf
    - https://jvns.ca/blog/2014/04/20/debug-your-programs-like-theyre-closed-source/
    - https://jvns.ca/blog/2021/04/03/what-problems-do-people-solve-with-strace/

Tools

- DevOps interview preparation course from kodekloud(paid course) - https://kodekloud.com/courses/devops-interview-prep-course/
- The above course covers:
    - Github
    - AWS
    - Docker
    - Terraform
    - Jenkins
    - Kubernetes
    - Monitoring

SRE interview questions and experiences

- https://github.com/mxssl/sre-interview-prep-guide
- https://github.com/michaelkkehoe/sre-interview
- https://amiralisobhgol.medium.com/i-received-sre-offers-from-facebook-and-google-without-a-university-degree-here-is-how-224f06b49e7d
- Go through all the blogs here - https://github.com/mxssl/sre-interview-prep-guide#blogposts
- https://danrl.com/srm/#screen
- Hiring SRE at dropbox - https://youtu.be/ucCSRY-KOCI
- Hiring SRE at LinkedIn - https://youtu.be/ZemNg9GYvOA