- Must have clear core concepts
- Excellent Programming & algorithm development skills
- Must have the ability to learn independently (without being asked)
- Must be good at reading documentation
- Experienced candidates must be good at writing documentation
- Must be able to summarize documents/tutorials/videos & teach core concepts to other team members
- Must be passionate
- Must enjoy work
- Must be ambitious & motivated

Hiring Process / Philosophy

Instead of going over multiple rounds of interviews (analytical, technical, HR, etc) with a candidate over a period of time, we believe it's best to do one long test /interview where the candidate spends time in our office answering questions & solving problems. You're welcome to ask us any questions ahead of time. You can also ask as many questions as you want **after** the interview.

Based on how the interview goes we may make an offer right away or get back to you in a couple of days. Alternatively, some candidates are placed on a wait-list and called when there is a requirement generated from our team.

For fresh graduates, we have some initial training requirements that need to be met before the selected candidate can begin work at our startup. The orientation part is usually a couple of weeks. You will typically spend 75% of your time going through the training program (learning the important things that will allow you to start contributing towards the actual work we do). The remaining 25% time will be spent on implementing what you learned (by doing small tasks/projects). As time passes you'll spend more time doing and less time learning.

This means that learning is an essential part of everyone's job. Not learning is *not an option here*. Everyone at our company typically spends about 25% of their time learning new things and working on cutting edge (sometimes bleeding edge tech). Our employees are expected to always be comfortable with learning new things, solving complex problems, and working as part of a team so we can deliver true value to our customers.

We typically have a probation period of three to six months. We offer competitive salary packages and offer opportunities for upward mobility within the organization. Our salary packages are based on employee skills, learning ability, contribution to successful projects and how well you fit into the team culture.

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advantage. We expect you to know how and where to search for solutions to problems that you don't understand. We expect that before you ask a colleague, you will have tried your best to search for a solution online (by yourself)

Reasons to work at Cowlar

- Opportunity to Learn from an exceptionally talented core team
- Our management style, processes, policies & team skills are constantly in the process of improving. Joining us will help you become part of a great team
- Access to purpose-built in-house specialized training modules to constantly make you better
- Access to paid online courses to accelerate growth & inspire you to build great products
- Freedom to work with core-team to choose an area of specialization over time that you excel in & that is mutually beneficial to you & the team. We want our people to love at least 90% of their work & the tasks they do.
- Opportunity to work in a conducive and comfortable work environment (We take care of our people, treat them with respect & expect the same in return)
- Free Meals & Snacks (Breakfast, Lunch, Dinner & unlimited Snacks). We have a Full-time dedicated Chef with a Full Kitchen in our office that cooks and serves fresh, clean meals for the entire team. Free Tea, Coffee, Snacks are available completely free of cost.
- Multiple opportunities for rapid professional & personal growth
- A Competitive Salary Package
- Lots of opportunities of upward mobility within our startup by demonstrating you can execute
- Opportunities to get multiple salary increments per year based on clearly defined goals / performance / contributions to team's core goals.
- The founders of Cowlar strive to be good leaders & lead by example [1]

How to Prepare for the Test

1. Prepare from the materials in this document. There are many links to useful resources. It is not expected that you will know everything on day one [5]. We're just looking for people who can show the willingness to invest some time improving their skills before they come in for an interview. This is a win-win scenario for you (the candidate). Preparing for the interview/test can seem challenging at first. But if you dedicate some time and effort into learning and executing then it dramatically improves your chances of being hired asap. In the unlikely event you do not get an offer from us, you would still have learned some skills which can help you in future interviews and set you on a path of rapid career development. Our test is **not easy**. This is because we are looking for the best people. We're not looking for button pushers, clock watchers, or people who come to work as a compulsion / necessary chore. We are looking for talented and passionate people who love their field of work and enjoy solving difficult and challenging problems.

2. **It is perfectly fine to reschedule your interview if you think you need more time to prepare.** There is no negative marking for delaying or rescheduling the interview date. You can reschedule as many times as you want [6] .That's perfectly ok from our point of view. It is NOT OK to show up unprepared and waste your & our time. People who show up unprepared are quickly offered a cup of tea & their

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[5] Please note. If you're an experienced developer, the threshold of what you should know will be different. We don't care about the number of years you've worked in the Pakistani software services industry, we want to see what happens when the rubber hits the road. Everyone says they're good. Please show us, don't tell us.
[6] If you want to reschedule your interview on the same day it was supposed to take place, you'll need to give us four hour's advance notice. This helps us differentiate from people who want to reschedule & those who don't show up.

interview ends in no time. We only spend time interviewing people if we think there is a chance we can hire them. We generally only interview candidates ONCE.

3. You can use the internet during the interview. There is no negative marking for using the internet during the interview. You can also access this document (or any bookmarks, code snippets, previous projects during your test for reference materials. You can bring as many cheat sheets with you as you want.

4. It is generally recommended that you bring your own laptop so it's installed with your preferred software/ code editors etc. If you cannot bring your own device, one will be provided to you.

5. As you watch the videos in the test materials section below, increase the playback speed to **1.25x. Then as you get comfortable increase speed to 1.5x and eventually to 2x speed**. Eventually, you'll be able to watch a 40 minute lecture in 20 minutes without a problem.

6. Look at the [1] level links for each section before diving in. Sometimes this will not be the case, you need to realise when you need to abort / close a link and move on to the next link.

7. During the interview and demo portion at our office. You can use two life lines.

   (A) **Can use the internet.** If you're experienced, you should have a decent hold of syntax (you should not have to look at a website in order to write a for loop)

   (B) **Phone a Friend/Person** (You are allowed to call anyone you want (you will have 5 minutes to have a conversation over the phone)

8. Please use online resources to revise and practice your core concepts. Here is a little secret. If you follow it, we will hire you. Worse case scenario is you become better skilled at what you do. The secret is to work hard and spend the necessary time learning. We are telling you in advance what questions we will ask and where/ how to prepare for them.

9. You need to get comfortable with learning online and offline. One of the benefits of working at Cowlar is having paid resources and training materials available to you. If we hire you we will have purchased more than 100+ paid courses / online tutorials from sites like Udemy, VueMastery, VueSchool, SkillShare, Pluralsight etc. so our team has the best conducive environment for learning. We also arrange to provide webinars that might be useful for your professional growth.

Test Preparation Materials

Please note. As we receive hundreds of applications for each position, ultimately it might come down to who can answer/demo the most skills (practically) from the questions/topics below. Please do not ask to be interviewed if you have not prepared from the materials below

Item	Duration
Git & Github CrashCourse	32m
Resolving Git Merge conflicts	11m
Advanced Git	59m
📄 **Cowlar - Trainings - Git**	
Item	**Duration**
Python with OOP	1hour 49m
Learn Flask for Python	46m
▶️ **The Complete Guide to Python Virtual Environments!**	16m
▶️ **Python Exception Handling (Use Try..Except to Catch Errors!) #2**	10 min
Context Managers and Python's with Statement	10m read
An Introduction to Python Threading	
Threading with Examples	
Item	**Duration**
Machine learning with python	49m
What is a Neural Network?	23m
Specialization in deep learning part-1	43 videos

Item	Duration
[Specialization in deep learning part-2](#)	34 videos
[Specialization in deep learning part-3](#)	22 videos
[Specialization in deep learning part-4](#)	42 videos
[Specialization in deep learning part-5](#)	6 videos
[Documentation for media-pipe](#)	1hour read
[Nvidia Xavier Guide](#)	1 hr Read
[Machine Learning in C++](#)	
[C/C++ Machine Learning Libraries For Data Science](#)	
[Paho-MQTT python documentation](#)	2hour
[Computer Vision, Deep Learning, and OpenCV](#)	~
[Documentation of SQLite](#) (just read the basics)	2hour
Item	**Duration**
[Basic terminal commands for Linux](#)	10m read
📄 **Cowlar - Trainings - GitOPS**	
📄 **Cowlar - Trainings - DevOps**	
[Linux SSH guide](#)	5 min Read
Working with NAS , moving files with python	
[What is NAS](#)	5m
▶️ **How to Map a Network Drive in Windows 10**	4m
[How to Download and Upload Files in FTP Server using Python?](#)	10m read
[Paramiko- How to SSH and transfer files with python](#)	10m read
[SMB File Transfer Protocol (Documentation)](#)	
pysmbItem	**Duration**

[Matplotlib Tutorial](#)	34m
[Scikit-Learn Tutorial](#)	44min
[Pandas Python Guide](#)	1hour 7m
[Gradient Descent](#)	19.25 min
[Backpropagation](#)	21 min
[Backpropagation Calculus](#)	10.25 min
[TensorFlow and Deep Learning fundamentals with Python](#) (Advanced Category, if you have completed all other content then you can watch this)	10.25 hours
[Keras with TensorFlow Course](#) (Advanced Category, if you have completed all other content then you can watch this)	2.75 hours

Item	**Duration**
MQTT	
MQTT Protocol **[0] [1] [2] [3] [4] [5]** MQTT Mosquitto broker **[1]** MQTT Publishers / Subscribers **[1]**	
Use REST APIs, POSTMAN	

Item	**Duration**
[How to use dotenv package to load environment variables in Python](#)	**10m**
[Load Environment Variables from OS](#)	

Demo

Demonstrate your skills (optional)

Any projects you have done, bring them with you and showcase your code / etc on your laptop. This can include your professional projects, FYP, your python work, github contributions.

Anything that showcases your ability. We are particularly interested in seeing how cleaning / well the code is written (do you write comments in your code etc)

Interview Tips

Here are some resources to use to reduce interview nerves [1] [2] [3] [4]. We highly recommend watching all these videos.

MUST PREPARE TOPICS FOR INTERVIEW

1. ML core concepts(SVM,DT, Random Forest, Naive Baiyes, PCA, LDA etc)
2. DL core concepts(CNN,RNN,ANN,LSTM,RAGs)
3. MLOPs(mlflow + point)
4. LabelOps
5. CICD
6. Deployment techniques
7. NLP
8. LLMs
9. Docker
10. FAST/FLASK

When to schedule an interview

This is a question we often get asked. This will depend on the candidate after they have had a chance to go over the test preparation materials. Generally speaking ...

For **fresh graduates**, it is highly recommended to invest some time in learning the material. Take a look at the topics, watch the videos / read the articles and **learn by doing**. You will remember what you learn *by doing* . When you feel like you have sufficient ideas and are 2x or 5x better than you were before you started your preparation, please contact us by email to set up a date. Please send us three dates that work for you. Do not think that there is a deadline for this position. Don't schedule the interview fearing that someone else will take this position. Schedule it when you're ready because we usually only interview candidates **ONCE** [7]. If you're good and promising, there is a very good chance we will hire you and put you through our training program. In the unlikely event where you don't get an immediate call, you might be placed on a short-list where we tap into first when looking to add new fresh graduates.

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[7] We do make exceptions to this rule in exceptional circumstances. The chances of you getting that exception are about 2%

In the unlikely event that you don't hear back from us at all, (the worst case scenario), you will always be in a win-win position. This is because you will
- Still have gained some important & useful skills
- These skills will help you throughout your professional career
- Dramatically increase your chances of being hired by a good company in the future.
- You'll learn how to learn online. That is an important asset.

For **experienced professionals**, please review the materials carefully. You might know a lot of these things. Our test / questions get increasingly difficult based on the duration of your industry experience and based on the reputation of the (good) companies you worked for in the past. You might learn something new while you revise and get better at what you do. There is really no reason to not learn.

From our point of view, the good thing about hiring experienced professionals is that they have already learned a lot and can begin contributing to our team in a short period of time. Sometimes, the bad thing about hiring experienced professionals is that they have learned some bad habits [8] in the past. Please leave all those bad habits behind when you come in for the interview. This can be difficult to do. Bad habits are difficult to break. But one can always try. It takes self-realization, will power & determination. The greatest minds are those that *can be* changed. We don't hire people with bad habits. The reason is that we cannot allow anyone to ruin our culture, no matter how brilliant they are. There is no & never will be any place for *brilliant jerks* at our startup.

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[8] The bad habits can be programming or development related. They can be related to poor development methodologies or practices. They can also be related to not being a team player. They can be related to not acting responsibly. They can be related to not treating others with respect. They can be related to gossiping or participating in office politics. If you think writing good maintainable code, commenting, documentation, Testing, Software Quality Assurance is for losers, please schedule an interview for Feb 30, 2050

Interview FAQs

1. What's the biggest mistake people make during the interview process?

They don't invest enough time in learning from the test materials or in preparation for the interview. Sometimes, they just ask to be interviewed too early. Showing up with not enough adequate preparation reduces your chances of being offered a position exponentially.

2. What time does the interview usually begin?

The typical time for starting an interview is at 11.30 am. You pick the date, we pick the time (unless you're traveling from outside the city. In this case, please inform us beforehand in writing so we can accommodate you)

3. How long does the interview/test last?

The duration can be anywhere between 5 minutes to 5 hours. Please plan on being here for 5 hours in case the interview goes that long.

4. What to expect on interview day?

- You arrive between 11.15 am to 11.25 am. You will be judged for being late. Please inform us ahead of time in case you're running late. Please plan to arrive on time and consider traffic / your commute to our office.
- Your first question is water/coffee/tea or green tea? Please pick one of the choices. Nothing is one of the choices. This is a clear sign that you read this document carefully and are capable of following instructions.
- You are then given a piece of paper with some analytical questions and a pen + calculator. Please answer the questions. You can answer any 5 questions of your choice. If you want to use the internet, show us the questions so we can keep a score of how many without internet and how many with the internet.
- You're then asked a few simple questions about yourself and regarding the things mentioned in the CV.
- You will be given 3 to 5 minutes to present your case (pitch us why we should hire you and how your preparation went)
- We will then start asking questions. The questions and how you chose to answer them will determine how many people from our team join/leave the interview.
- The questions tend to increase in difficulty level over time. We might ask you to write some code.
- Please keep your answers short, concise, and to the point. We do appreciate it when someone explains a related concept with great clarity, but please don't go around in circles for every answer.
- Please try to answer all questions honestly and don't hesitate if you don't know the answer. Take a couple of seconds to think or ask us to repeat the question if you had difficulty understanding the question.
- Please don't think there are any bonus points for not using the internet. You can actually use the internet every time you're asked a question. In this case, we are judging (& hoping) that

your answer is **correct** and taking note of the duration of how long it took you to answer. It's better to be late and correct.

- If we end up spending more than one hour, you can ask us how your interview went at the end (we only provide feedback optionally / if you ask us). We are also looking for feedback about the interview process and how you think we can improve as a startup.
- At any time, you can choose to decide that you don't want to work here and leave.
- Please feel free to use the toilet (in case you need to)
- Please feel free to pause the interview in case you need to pray. You can pray in the designated area in the office.
- Lunch, snacks, and dinner are offered free of cost. Please accept food /drinks that are offered and don't do 'takulf'.
- If you smoke, no smoke breaks are allowed during the interview. You are welcome to go outside and smoke as much as you want before or after the interview.
- Please treat our people with respect. We try very hard to do the same.
- Please keep all comments/feedback to yourself till the end of the interview (in case the interview lasts more than one hour).

5. Why can the interview duration last 5 hours?

As we spend more time interviewing a candidate, the difficulty level of the questions increases. Please understand that we only interview/test people for longer because they are overcoming the obstacles and increasing their chances of getting an offer on the spot (or very soon).

6. Do you provide any remuneration for candidates traveling from outside Islamabad / Rawalpindi?

No

7. Why is this document so long?

We want to know if you can read, listen, understand & execute. We also want to know if you actually take the time out to read this entire document. We will be testing this during the interview. The length of this document is also meant to discourage people from asking to be interviewed in-person (esp who are not interested in working hard / reading documentation / learning new things). Your job as a software engineer requires you to know how to read well and how to write well too (although that is a much harder skill to master). Reading this document carefully is part of the test / interview :)

8. Will you answer my questions about the YC experience or provide feedback about my startup idea?

No

9. What are you looking for in fresh candidates?

In fresh candidates, we are looking for people who want to become polyglot software engineers /developers. During your initial training period, you will be trained in many facets of software development & software engineering. You must be okay with developing a decent

understanding/working knowledge of various aspects of technology development (basically you need to know what other people are doing in the company so you can talk to them if you're in need of their expertise for your project/task.

10. How do you decide on Salary?

Our salary packages are based on a combination of employee skills, learning ability, ability to execute without mistakes, their contribution to successful team projects & how well you fit into the team culture. Simply put, the more you know and the faster you can learn is directly related to how fast you can execute. If we can ship good, reliable software faster, we can make more money. We can then share that (extra) money with you.

11. How do you decide which roles to assign to new team members once you hire them?

Generally speaking, over time, you (the employee) & us (the company) will mutually agree on your areas of specialization based on your preferences, skills, your proficiency, and the company's needs after the orientation and training period.

12. Best piece of advice to prepare for the interview/test?

Please try to relax. Try to avoid being anxious. We have made a special effort not to make the interview tense. This is because we want to see how you perform in a real job-like condition. Just prepare as much as you can, try your best and leave the results to Allah. Here are some resources to use to reduce interview nerves **[1] [2] [3] [4]**. We highly recommend watching all these videos.

HOW TO APPLY FOR THE JOB

Before applying, just know that our process is highly competitive,but for those who have prepared well will sail through the process and won't even notice it, but those who are applying blindly will have a tough time.

We really appreciate people who value their time, as we value yours and ours time.

How to apply?

It is quite simple, just go the work.cowlar.com,
Find your relevant job under the, "Open Job," section and apply!

Follow the simple steps as guided in the application form and you should hear back from us, if you are shortlisted. Next steps will be guided by the Talent Acquisition team via email or call.

In case, you have an issue with the job application, or there is an error, or you have any queries, you can write to us at,
careers@cowlar.com, but please make sure you add relevant subjects, and craft your email properly, a well written email can get you a much faster response.

Best of luck for your application.