The Road Map to Data Analytics

By: Jonathan Smith

With Contributions from The Brightest Minds in Data



About the Author:

My name is Jonathan Smith and I am a former 10 year public high school math teacher. I have since transitioned out of teaching and into a Senior Business Intelligence Analyst role. For years, when contracts rolled around in the Spring, I would passively apply to positions outside of education. Unsurprisingly, I never received a call back because I wasn't following a plan.

It wasn't until I decided to create the *Road Map to Data Analytics* for myself around Thanksgiving of 2022 and follow that plan faithfully that I began to experience success. This road map led to multiple interviews and job offers and I was able to choose the best position for myself and my family at the conclusion of the 2022-2023 school year.

Now that I have made the successful transition into data analytics, I want to help others do the same.

I hope you find the *Road Map to Data Analytics* helpful to your journey.

Good luck and Always Be Learning!

Jonathan Smith

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The Roadmap to Data Analytics

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Before You Leave: Planning

The road map to data analytics looks a lot like planning a trip. You need to have an idea of where you want to go, how you're going to get there, and what you'll be doing once you arrive.

In a similar vein, if you plan to become a data analyst you need to understand what there is to learn, how to hone those skills, and then apply them in the most effective way possible. To do this, you need to create a realistic timeline for yourself that includes each step in the *Road Map to Data Analytics*.

Learning, Portfolio Creation, Resume & Application, Interview Techniques, and Negotiation.

Depending on experience, luck, and time commitment this process could take anywhere from 2 months to a full year (or more). With that being said, creating a firm (but flexible) plan will help tremendously in accelerating your journey.

"Make sure you understand what the job requires in terms of skills, so you can focus on making sure you've got what you need in your toolbox to compete. Make sure you understand what the job will entail, so you can practice these things and be confident when you do eventually start a role. Apply for roles with focus and intent, not just applying for a hundred roles per day. Don't think that hitting 'quick apply' is the end of the process. That's the beginning. Contact the recruiter or hiring manager and let them know you're keen"

Nick HoltSQL Coaching

The first step in creating your plan is to consider how urgent the need to career pivot into data analytics is and how much time you have each day to invest in the process. At minimum, I suggest allocating an average of an hour every day to reach your goals. This could be as simple as an hour everyday between dinner and bedtime, or two 3-hour sessions over the weekend.

If you have more time to invest, do it! But beware of burnout. If you begin with 6-hour study sessions every day for two weeks, it can be tough to stay motivated or even retain all of that knowledge effectively.

Once you have decided how much time you have to invest, consider your long-range plans and when you could realistically land a position. Below are general time frames I would expect each step to take. However, keep in mind these are unique to every person and is dependent on your time commitment and (in some cases) luck.

Suggested Timeline:

Learning ~ 1-2 months

Portfolio Creation ~ 2 weeks – 1 month

Resume & Application ~ 1 – 2 months

Interview ~ 1 month

Negotiation ~ 1 week

While these steps are presented as linear, it can be far from it. Overlap and cycling back to previous steps can (and should) be happening throughout

"Be consistent and don't be afraid to change your strategy if something isn't working. If you're not getting any interviews work on your resume. Send a message to a hiring manager or someone who works at the company who can make an introduction. Put in that extra initiative and you will stand out. Be open to different opportunities, maybe apply for hybrid and/or in-person opportunities for your first role. Most importantly, stay positive and don't compare yourself to others. Everyone comes from different professional backgrounds and has something important to contribute."

Diane Grair

this process. This is why it is so important to develop an *Always Be Learning* mentality. While initial learning is listed at 1-2 months, the learning never stops and continues through Portfolio Creation, Resume, Interviews, and even Negotiations.

After a few weeks of applying, you might discover that you aren't landing any interviews – revisiting and editing your resume might help. Maybe you're landing interviews, but you're having a hard time closing the deal. Then you've got to *Always Be Learning* and pick up some better interview techniques.

Having a plan is the first step before beginning your journey. Don't leave unprepared!

"If you're interested in becoming a data analyst, don't be intimidated by the thought that it's all about programming languages and statistics. In the real world, that's only a quarter of the actual story. If you truly want to succeed as a data analyst, you'll also need extend your focus to other essential areas such as communication and presentation skills, networking skills, problem solving skills etc. Most importantly, don't forget to build a strong online presence. The data landscape is quite competitive, so be sure to highlight your projects, knowledge and expertise to the community out there. Keep an open mind to learning new information and ideas each day, and just enjoy the process."

- <u>Salma Sultana</u>
- Data Consulting

Stepping Out the Door: Learning

As you step out the door following your *Road Map to Data Analytics*, you need to ensure that you are prepared and well equipped for the journey. To do this, you must build a solid foundation through learning.

The good news?

You can learn everything you need to become a data analyst without breaking the bank.

Tools that you need to be successful as a data analyst include: Excel, SQL, and a BI Tool (Tableau/Power BI). I suggest beginning with Excel, then learn SQL. After you have a strong foundation in both of these

tools, you are ready to begin creating projects while simultaneously learning your choice of BI Tool.

As mentioned in *Planning*, you should allocate at least an hour a day towards learning and upskilling.

Personally, I suggest learning through the use of free/cost effective online tools rather than spending thousands of dollars on a bootcamp that walks you through the exact same process.

Following are some amazing resources to either introduce new skills or reinforce old ones.

"To convince a hiring manager of your expertise and stand out in the pool of applicants, you need to emphasize your business acumen: don't just focus on the "what". Focus on the "so what". In your portfolio, be sure to not just put numbers in a dashboard, but visualize them in a way that speaks to the larger business impact. For example, rather than just including a line chart that shows sales over time, feature a tooltip that lets someone drill-through into why dips and valleys may have occurred. Then, when it comes time to talk about the project in an interview, lean further into that "so what" mindset: talk about not just what you did, but more importantly why it matters and what actions the viewer can take to address business priorities."

- Christopher Chin
- YouTube
- Free Resources



Online resources to LEARN data analytics:

Alex the Analyst (Youtube)

Coursera

DataCamp (Regularly hosts 50% off sales)

Maven Analytics

Free resources to PRACTICE your skills:

Excel Challenges:

Excel Exercises

Excel Practice Online

SQL Challenges:

StrataScratch

Data Lemur

PostgreSQL Exercises

Data Viz Challenges:

Maven Analytics

Work Out Wednesday (Tableau)

Work Out Wednesday (Power BI)

- "1) Learn how to learn. The data analytics industry is always evolving and you will need to be comfortable learning new concepts, systems, and tools.
- 2) Focusing on learning to accomplish tasks, rather than focusing on learning a specific language, or tool. For instance, instead of trying to "learn Tableau", learn how to communicate your insights with visuals.
- 3) Think critically. Be inquisitive about your data, stakeholder requests, and processes."
 - Andrew Madson
 - Data Resources

"Be patient, curious, and willing to fail. Learning data analytics is a lot of fun - and a lot of work. The most important learning you do will be when you work independently on portfolio projects, so don't

- **Annie Nelson**

stress (or spend too much money) on courses."

Free Data Sets

"Power BI is an analytical and visualization powerhouse, but as such it can be challenging to learn and become proficient quickly unless you focus sharply on the right things. Focus first on applying your knowledge of SQL and Power Query to learn to build a star schema data model in Power BI, since the quality of your model will directly determine how well the rest of your report works. Next, learn DAX but apply the Pareto principle and only focus on the 20% or so of functions from which you will derive most of the benefit, and learn to use offsets so you can ignore the 40+ wonky time intelligence functions. Many people who successfully navigate the above elements still crash by misusing color and choosing the wrong visuals. Apply the International Business Communication Standards (IBCS) design principles to your report and you won't go wrong. Finally, down the road unlock the incredible advanced analytical capabilities of Power BI by learning how to incorporate Python/R scripts into your Power BI models."

- **Brian Julius**
- YouTube
- **Data Exercises**

Hop in the Car: Portfolio Creation

Now that you have made it to the car, it's time to do a last-minute check that you have everything you need...a car won't start without keys in the ignition! Similarly, your learning and certificates won't land you a job without projects and a portfolio to demonstrate your knowledge.

Creating an Independent Project:

1) Decide which tools to use.

The best way to get the most value out of your project is to use multiple tools to clean, analyze, visualize, and analyze (again) your data. Most rookie projects only use one tool. Set yourself apart by using two!

Excel or SQL should be the tool of choice for cleaning and doing initial analysis.

Once your data is clean and initial insights have been made, use Power BI or Tableau to create visuals.

"Be a sponge. Data is a forever learning experience. At every level of your journey growth will only be possible if you allow ideas in."

Ajay Patel

The Excel Dojo

Download Your Tools:

Excel (Steps for free online version)

<u>SQL</u> (YouTube video w/download steps)

Power BI

<u>Tableau</u> (Free online version)

2) Locate Your Data.

For your first few projects, pull a dataset of interest to you that has already been collected online. If you need a question prompt to get you started, I suggest starting with Maven Analytics. The data is purposely dirty, but the question

"When building your portfolio, it's important to answer questions based on what is needed in that industry. Along with that, you should strive to work with topics you are interested in. By doing so you put yourself in a top position when you're asked to explain your project. Nothing is easer to explain than something you are passionate about. The joy you had creating the project will shine through in the interview process."

Tabitha Diaz

prompts are a great way to begin brainstorming the direction of your project.

As you become more experienced, you can create a question on your own and then find data to solve your problem through means of web scraping. This topic, however, is outside the scope of this text.

Links to Free Datasets:

Maven Analytics

Government Data

<u>Kaggle</u>

3) Clean The Data and Build a Dashboard.

Now that you have your data and picked out your tools, it's time to begin the project!

This is where your learning will come into action. Use your knowledge of Excel/SQL to clean the dirty data and conduct an initial analysis. Once you have a clean dataset to work with, it's time to upload the data into Power BI or Tableau and create some visuals! This is where the story is told. Make sure your visuals are clean and easy to understand. Getting feedback from others is crucial in this step.

Keep a log of steps that were taken and insights you have gained along the way. These notes will be critical in publishing your work and creating a portfolio.

4) Publish Your Work.

Once you have created a product you are satisfied with, post your work online and in your resume. Your project should have a detailed analysis that includes what questions guided your project, what methods were used, and pictures/videos where applicable. I suggest posting SQL code and analysis on GitHub, Excel/Visuals and deep analysis on Maven Analytics, and link everything with a brief summary on Carrd. All of these sites are free and simple to use.

Links to Free Online Portfolios:

Maven Analytics

GitHub

Carrd

NovyPro (Great for Power BI)

"The road is different for everyone. As a stay at home mom to business analyst, the key for me was to stay open. Open to creating new connections, that would lead to conversations of opportunities. Open to creating my own experiences that I would later use in my experience section in my resume. It is not easy, it is not a race but, you can do it!"

Samantha Paul

5) Add Projects to Your Resume.

The entire purpose of projects is to demonstrate to employers that you are a data analyst, so don't forget to add them to your resume! Hyperlink your portfolio at the top of your resume and include links to specific projects detailing what insights were gained from your analyses. This will be described in more detail on the next stop on your *Road Map to Data Analytics*!

Begin Traveling: Resume & Applications

By now you have checked everything off your list, you're in the car, and you're ready to go! The only thing left to do is hit the road and begin travelling. In the world of data analytics, this means it's time to fine tune a resume and put in some applications!

Success in this phase of the *Road Map to Data Analytics* is landing a screening call or initial interview. To achieve that success, you must have an impressive resume and apply effectively.

Highlight Experience as a Data Analyst

The best piece of advice I received on my own journey in becoming a data analyst was to create a resume that exemplified the fact that I was *already* a data analyst. Most companies won't offer the time of day to someone that is an "aspiring" data analyst. If they do, you likely won't be offered what you're worth for the position since the picture has been painted that you're inexperienced and will require more effort to train.

"If you're trying to break into data, being open-minded and flexible is key. Your first data role will most likely not be perfect. As long as the role checks off the necessities for you and your life situation, take it. This industry is all about getting your foot in the door. Get your first role and knock it out of the park."

- Chris French
- Career Coaching

Resume Tips:

LINK YOUR PROJECTS! You did them for a reason, make sure you include them in your resume. If you analyzed data in any capacity in your previous positions, include that in your job title. Begin with what you accomplished and follow that up with the tools you used. **Embolden** or *italicize* key metrics or achievements in your job description.

Resume Template (Alex the Analyst)

"You want to showcase skills and relevant experience in your resume. I'd recommend using Google's XYZ format. Focus on your achievements, be specific and include metrics. Since I was transitioning from a non-traditional background, I emphasized not only my technical skills (e.g. Excel and SQL) but also my soft skills (e.g. attention to detail, communication) in my resume.

If you do write a cover letter talk about why you're excited and how you can help the company solve their problems. The more specific the better. A cover letter helped me land my current role at an online gaming company. My advice: tell a story. In my cover letter I talked about how I spent countless nights play RPGs and one of my favorite parts of video games is being able to view my stats (e.g. achievements, progress, and performance). It helped me improve my play style, which was my first introduction into data analytics/visualization."

- **Kelly Adams**
- Data Blog

Apply Effectively

To increase your chances of landing an interview, you need to apply broadly.

What this doesn't mean: Submit your resume for every single position you come across.

What this *does* mean: Apply through various sites and to various job titles.

Application Tips:

Apply on LinkedIn, Indeed, ZipRecruiter, etc.

Set filters for jobs posted in the last few days.

Search for tools and not just job titles. For example, you might return positive results when you search for jobs with "Power BI, Excel". These positions might not have the title of analyst, but complete the same work.

Set a 2 hour block of time once or twice a week where you apply to companies through their job portals. Use easy apply at night when you're winding down for the day. These are low effort applications that can be done through your phone.

Get Recruiters Searching for You

A recruiter's job is to find the most qualified person to fill a vacancy at their company. Making positive contact with recruiters can translate into a higher chance of interviewing later.

Recruiter Tips:

After applying for a position, reach out to the recruiter or hiring manager via email or direct message to express interest in the position.

Create content and engage regularly on LinkedIn. Demonstrating your knowledge regularly will draw more eyes to your page. You may even have a recruiter make contact with *you* first.

If you have connected with a recruiter, engage with *their* content in a meaningful way. The goal should be to build a relationship, not ask for a job on every post.

"Applying to data jobs can be tough so apply early and apply often. Whenever possible, reach out to the recruiter immediately after applying with a personal note (don't make it too cookie cutter!). I also recommend posting on LinkedIn and developing a personal brand to help draw recruiters to you. Posting about your journey, your projects, and technical skills gets you noticed by companies, creating a passive approach to job hunting in addition to the active approach of applying for jobs. Aggressively practice each approach to garner the best chances of landing an interview quickly!"

- Matt Mike
- Data Newsletter

Arrive at Your Destination: Interview Techniques

You've arrived at your destination! It's time to step out of the car and get down to business. However, before parking, you need to make sure you're at the right place and you'll be let in the door. In the *Road Map to Data Analytics* this can only mean one thing: Interview Prep!

Preparing for the Interview:

Before speaking or meeting with anyone, you need to do your research. This means once you receive contact for a screening call or initial interview you need to read, reread, then re-read again the job description. The goal is to speak confidently about each task that is required and understand the company's own goals and objectives.

"When interviewing, it's important to remember that the conversation goes both ways. Not only will this shift the interview from feeling like an interrogation, but this mindset allows you to get more out of the time. Make sure that you bring questions to the interview that you're actually interested in rather than questions that you think you're supposed to ask in interviews. And most importantly, be yourself!"

- **Christian Wanser**
- Career Help



Anticipate which questions may be asked during the interview and answer them *out loud*. Hearing yourself speak will help with the flow of your answers and you can fix any issues. If you have a hard time coming up with questions, run the job through Chat GPT and ask it for interview questions.

Additionally, clarify what the interview process will look like. Some companies require multiple interviews and an assessment. Others will only having a screening call and a virtual interview. Understanding this from the beginning helps tremendously with preparation.

"If you've landed an interview for a Data Analyst position, congratulations! You are being considered as a potential candidate for the job based on your qualifications and overall professional profile. Now recruiters and employers want to find out if you're the right fit for this position.

Going into your interview, remember that the way you look, the way you carry yourself, and the way you speak make as much of an impact on the interviewer as what you talk about during the meeting. Stay confident, relaxed, and cheerful. You are in the position to decide whether this job is the right fit for you as much as they are. The questions you ask during the interview are as important as the questions you are asked, so prepare a list of questions you have about the role beforehand. Research the job and the company really well prior to your interview, in addition to brushing up your technical knowledge.

A great way to fight off the interview nerves is to practice taking deep breaths, and assuming an open and relaxed posture. Pause before you start speaking to gather your thoughts; this is more impactful than rushing to speak before you're ready and sharing too much irrelevant information to fill in the silence.

Remember that the interviewer is assessing your personality and soft skills too, not just your technical skills. Answer any technical questions logically, and if there's something you don't know, express your candid interest in looking forward to covering that ground and understanding the importance of having said skills in that role."

Amna Ahmed



Nail the Interview:

The purpose of the interview is to demonstrate that you are the best candidate for the job. Your resume earned you a spot at the table, but you need to do more than just recite what the interviewer already knows.

Lean into your strengths and speak to them. Having examples prepared ahead of time that demonstrate your ability to use, analyze, and interpret data in a meaningful way is a must.

Answer questions intentionally. A great response method to use is:

State the question at the beginning of your response, answer the question, then restate the question. Implementing this technique helps keep your response on track and prevent you from inadvertently answering a different question than was posed.

Ask questions!!! You should always have questions during and at the end of your interview. Asking questions shows interest, choosing to close out an interview without them is making the choice to lower your chances at an offer.

Some basic questions you can ask include questions on: team culture, the type of work you will be doing, the most common tools used on the job, opportunity for growth, and what the next steps would look like in the interview process.

"When it comes to interviewing for a new job, the best thing you can do is prepare. You can do this in a few different ways: research the company, their values, the position, the job responsibilities, etc. and see where your experience aligns. Look up behavioral interview questions to see some recommendations for how to answer them (e.g. "Tell me about yourself" doesn't mean give the interviewer your entire life story; focus on things that matter to the job - an overview of your professional history or education, why/how you think you would be a good fit for the role, and what you're looking to do in the future.). Use the STAR method to help you quantify your achievements: break your answers down into the situation (details of a specific event), the task (what you needed to do), the action (what you did and how you accomplished the task), and the result (the impact of your actions). Finally, PRACTICE! Use a friend, a mentor, a sibling, or even ChatGPT, to give you feedback on your answers. The worst thing you can do is go into an interview unprepared. So do your due diligence: research the company, look at interview questions, think about your own accomplishments, and practice. You got this!"

Lauren Rosenthal



Behavioral Tips to Remember:

Even if you understand interview techniques inside and out, forward and backwards, right-side up and up-side down you still might miss out on an offer if you don't keep these *behavioral* tips in mind:

Start with a smile and show that you're eager to be there.

When someone tells you their name, remember it and use it during the interview.

Don't use "um" or filler words, instead use intentional pausing when you respond.

Dress for success! As a general rule of thumb, you should be dressed more professionally for an interview than the position requires when you're on the job.

Lastly, don't forget to send a follow-up email! Thanking the interviewer for their time and following up on a topic or two discussed during the interview is one last opportunity to showcase your eagerness and competency for the role.

- "1. Research Research the industry and the company. Understand their challenges in the local landscape and find the solutions global counterparts are implementing. This will also help you develop business acumen
- 2. TELL ME ABOUT YOURSELF? The way you answer this will define how the rest of your interview will go. Talk about your strengths (e.g. you are excellent in SQL, talk about how you used SQL to implement a company wide solution etc.). If you are a novice in some skill, don't talk about it unless asked.
- 3. When asked "Tell me about a time when you....", don't just tell what you did. Always use STAR method to answer any questions be it technical or situational. This will give context t your actions and make them tangible and recruiters love what they can measure.
- 4. Take printed portfolio this is not so common and recruiters will remember you for this.
- 5. Ask questions. At the end of the interview, make sure to ask questions that will make the interviewer think before answering. Do not ask questions just for the sake of asking this interview is as much for you to know the company you will be working at.
- 6. SMILE, but not like a creep. :))"

Talha Khan Data Blog

Complete the Journey: Negotiation

You've done it! The interview was a success and you have been given an offer. While it may feel like you have completed the journey, you've still got one more step. That final step is *negotiation*. You need to be prepared to skillfully and tactfully negotiate the best offer you can receive.

Do Your Research:

Before you begin negotiating, you need to have an understanding of what the appropriate pay is for the position you have been offered. Keep in mind the type & amount of work you are doing and where the position is located. The median data analyst salary in Los Angeles, California is going to be drastically different from one in Mobile, Alabama.

"Focus on the non-obvious and non-technical things. Too many people think their analyst career will be defined by SQL statements, data visualizations and Excel files, but that is just the beginning. To actually advance your career you need to develop strong communication skills, be good at managing relationship and take initiative. Pay attention to those around you, especially non-analysts, and learn from them. Also find mentors who will help guide you in your journey!"

- **Dylan Anderson**
- <u>Medium</u>

Don't be afraid to cite your salary research. Citing your research during negotiation tells the employer that you are educated on what a fair value for the position is. This makes it less likely that you're taken advantage of.

Additionally, be aware of the benefits available. Negotiating a six-figure salary position is great, but much less will be available to you if you have terrible health insurance and a poor retirement plan.

Be Prepared Early:

The last thing you want to do is wait until the offer stage to discover the salary range for your position. If the range is not posted with the position description, ask at the conclusion of your screening call what the expected salary range is. This is a common question and no hiring manager worth your time would be offended.

"Starting my data career, specializing was what landed me my first role. You can do this by becoming very knowledgeable in a certain business subject or in a certain technical tool/skill. Later in my career, networking and solving problems were the biggest contributors to my career progression. Be strategic in your approach by thinking long term, but choose the right tactics to get you there!"

- Joe Squire
- **Career Coaching**

Knowledge of the salary range gives you an idea of where you can negotiate.

Don't be afraid to start on the higher end.

Additionally, you need to know the bare minimum salary that you can accept. If negotiations dip at or below that value, let the hiring manager know and don't be afraid to turn it down if it is outside of their budget.

Have a Strategy:

Let the hiring manager *present the initial offer*. In a salary negotiation, the employer usually offers the lowest amount they can while the interviewee starts at the highest amount. Allowing the employer to speak first ensures you begin at a higher value.

This helps prevent you unknowingly leaving money on the table. If they were prepared to begin an offer at 60k, but you speak first at 55k, you've already lost money.

If they *refuse* to speak first, begin with a range, not a number. For example: instead of saying "I'd like to make \$70k." Say, "I believe a fair salary for this role is \$70k to \$80k."

This strategy prevents you from talking yourself into a corner and gives you some more wiggle room in the negotiation. It also gives the perception that your minimum value is at the lower end of the range. In reality, this is a value that you should be okay negotiating below.

Be *creative*. If the employer is steadfast in a monetary offer and is unwilling to negotiate higher, having creativity can pay off in a big way.

For example, if the position was listed as on-site, ask for a few days of remote work. Or if you are only given 15 days of PTO, ask for 20. There's so many different ways you could be flexible in a salary negotiation. Don't miss out on those other benefits!

Accepting The Offer:

Don't feel pressured to close immediately. One of the biggest red flags a company can give is that they need an answer immediately, or even by the end of the day.

Once you have arrived at a final offer, if you are not 100% confident on the deal, ask for a day or two to consider. Any worthwhile company should be perfectly fine with that response and not pressure you into an answer.

If you are pressured to make an immediate decision, you could be negotiating for a job with a toxic work environment.

On the flip-side, if you negotiated an amazing deal for yourself you may want to close as quickly as possible. If you made out like a bandit in the negotiation, a few days might give the hiring manager time to reconsider their final offer.

Closing Remarks

I wish you tremendous success in your own *Road Map to Data Analytics*! Remember, while this book presents the Road Map as a linear path, it can be winding and cyclical.

You may get to your car and realize you picked up the wrong keys. Maybe you take a wrong turn, or maybe you just weren't prepared for the next step.

If you are not being met with success, circle back to a previous step to upskill and adjust where you may be lacking. The journey will be tough, but with determination and perseverance it will all be worth it!

Good luck and Always Be Learning!

- Jonathan Smith

Always Be Learning:

The Road Map to Data Analytics

By: Jonathan Smith With Contributions from The Brightest Minds in Data