Assignment : Dream Jobs

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1. Brief Summary

The role of a Data Analyst is to derive valuable information from the data which helps in taking business decisions for the company. Since, every industry from health, finance, education, sales etc want to improve their decision making, data analysis is not limited to a particular sector. Almost every industry needs a Data Analyst to grow their business. Thus, the dream jobs I have chosen for the assignment are from various sectors.

(i) **Quantitative Finance Solutions - Senior Analyst [Deloitte], Sydney NSW**

The Quantitative Finance Solutions team from Deloitte's Treasury Capital Markets (TCM) team enables companies and financial institutions manage complicated financial hazards. Task includes job on financial instruments or risk management difficulties and the design for customers of ad hoc tools.

(ii) **Data Analyst - Health Safety Environment [Boral], Sydney NSW**

The Health, Safety & Environment team is working on developing and channeling predictive analytics to assist consumers avoid incidents and accidents before they occur. The function is to perform HSE analytics for analytics and machine learning, including benchmarking and HSE data management.

(iii) **Data Analyst - Digital [carsales.com.au], Melbourne VIC**

One should drive results for our consumer company as a data analyst. Data is a main component of the puzzle at car-sales, which provides us a better knowledge of the behaviour of our clients and helps our company make choices, create reporting and predictive solutions.

(iv) **Data Scientist [Readify], Brisbane QLD**

The function is to provide incredibly elevated level of technical knowledge for visualisation solutions to customers. Optimise the design and execution of your solution as well. Being engaged from architecture, design, execution and deployment in the entire project cycle.

2. List Of Skills And Attributes

Skill/Attribute	Your Current Status	Your Future Plan
Bachelor or higher degree in Computer Science, Statistics, Mathematics, Engineering/IT	Bachelors Done, Pursuing Master Degree in IT	Job in Industry
Strong quantitative programming skills	Intermediate knowledge	Improve quant skills
SQL	SQL - Intermediate Proficiency	Build Database using SQL
R and Python	Python -Intermediate Proficiency R - No knowledge	Build applications using Python. Learn R if necessary
Business intelligence software: Power BI, Tableau and QlikView.	No knowledge	Learn the softwares and implement them
Knowledge of financial markets and financial instruments	Intermediate knowledge	Regular update regarding markets
Google suite of tools for analytics (Google Cloud, Google Data Studio, Big Query, etc)	No knowledge	Will learn to create API's (eg Maps SDK) using google suite
Work collaboratively with various teams to collect, collate and interpret data	Yes	Continue work in team to improve
A multitasker who can effectively juggle multiple projects	Yes	Continue multitasking to improve
Microsoft Data Platform (Azure)	Basic knowledge	Use azure as cloud storage for applications

Skill/Attribute	Your Current Status	Your Future Plan
Machine learning / Data Mining	Intermediate knowledge	Use machine learning to build different models
Internet of things (IoT)	Intermediate Proficiency	Build more applications based on IoT
C#, JAVA, VBA	Intermediate Proficiency	Continue using to improve
PHP, Matlab	No knowledge	Learn and build applications based on PHP and Matlab
Communication Skills	Intermediate proficiency	Use English in both oral and written form in daily life

3. Current Status And Evidence

(i) ***Bachelor or higher degree in Computer Science, Statistics, Mathematics, Engineering/IT*** - Completed undergrad in Bachelors of Technology in Information and Communication Technology and currently pursuing Masters of IT at UTS.

(ii) ***Strong quantitative programming skills*** - Internship as Data Analyst in a financial firm where I had to predict the commodity price in US futures market using time series modelling . Models used were ARIMA, Prophet and LSTM.

(iii) ***SQL*** - Designed and implemented Placement Database on PostgreSQL server as part of undergrad Database Management System course project. Tested the database for MultipleQueries, Triggers and Stored Procedures using SQL.

(iv) ***R and Python -*** Implemented many projects in Python from Smart Parking (Object detection using Deep Learning and Open CV), Speaker Recognition using Gaussian Mixture Model in Python. No prior experience of R.

(v) ***Knowledge of financial markets and financial instruments -*** Did an industrial internship as part of undergrad in a financial firm as an Analyst. Learned various aspects of financial markets including fundamental and technical analysis.

(vi) ***Work collaboratively with various teams to collect, collate, and interpret data -*** Acknowledged by peers and academics in team project building a Smart Home, a course project where we achieved a distinction grade.

(vii) ***A multitasker who can effectively juggle multiple projects -*** Previously worked on multiple projects at the same time and was able to complete all of them within the deadline.

(viii) ***Microsoft Data Platform (Azure) -*** Used CosmosDB as a cloud storage for TravelApp mobile application build using C# and .NET framework.

(ix) ***Machine learning / Data Mining -*** Implemented Speaker Recognition course project using machine learning concepts. The model was tested on a set of 86 speakers (both male and female) and achieved an accuracy of 86.10%.

(x) ***Internet of things (IoT) -*** Designed a voice activated Home Automation system, where different appliances are controlled by sending a Voice Command. Raspberry Pie was connected with a Mobile App to control various appliances such as TV, fan, lights etc can be controlled.

(xi) ***C#, JAVA, VBA -*** Developed various projects using various programming languages. C#, VBA used to build cross-platform Mobile App in Xamarin. Learned JAVA as part of a course - 'Object Oriented Programming' during undergrad.

4. Credile Plan

There are various aspects of getting a Dream Job in the field of Data Analyst. Technical knowledge of various programming languages and tools is the most important one. Secondly, Conceptual skills to solve a problem and find its most efficient solution. Lastly, Interpersonal skills to interact with other and work effectively is needed.

A) **Technical Skills -** There are many technical skills that I lack such as Business Intelligence Software such as Power BI, Tableau and QlikView. Learn them from the resources available on the internet. Eg Microsoft Documentation to learn PowerBI. Build a project using them and continue doing so. Similarly learn Google suite of tools for analytics (Google Cloud, Google Data Studio, Big Query, etc). Use Azure Platform as cloud storage for all the applications in the future. Various other programming languages like SQL, C#, Python where I have good knowledge, will use them and try to make a transition from intermediate to expert level. Most importantly, to develop machine learning models take part in competition organised on Kaggle and simultaneously learn through online resources like Coursera(Andrew NG), Udemy, Lynda etc.

B) Conceptual Skills - To develop conceptual skills one needs to look for a bigger picture covering all the corner cases possible in a project. Observation is important, have checks on every minute detail. Attending networking events and to discuss with other people how they were able to solve the problem. Other way to volunteer for assignments in different organisation, this way one can learn how other organisations function.

C) Interpersonal Skills - Its important to have a positive outlook in workspace. There may be situation where a person is stressed, but one should always see the positive side of it. Controlling the emotions is also important. Communication skills is the most important when one has to be assertive in their opinions to express and convince others in the workspace. Applying for Internships or volunteering the best way to develop these skills. These will help to develop the Interpersonal skills and also Technical Skills.

5. Interview Questions

Q-1) What are the criteria saying that the model developed is good or not?

—>If the data can be consumed easily it is a good model. Large modifications in data are scalable in a good model. The output of a good model is predictable. A good model can be adapted to requirement modifications.

Q-2) What techniques can be used to handle missing data?

—>The are many ways to handle the missing data but none of them are perfect.
Drop incomplete rows: It can be used if the amount of data is small.
Drop variables: This can be used if the ratio of missing information in a feature is too large and the characteristic has little meaning for the assessment. As it generally throws away too much data, it should be prevented in general.
Assess the Value: Estimate the value of missing field by using techniques such as KNN, regression models or even mean/median/mode.

Q-3) Regression or Correlation, which is the better way to find relation between the Price and Sales?

—>Simple linear regression can be used to determine the relationship between the dependent variable (Sales) and independent variable (Price).
Correlation coefficient or Standardised covariance ($-1 < r < 1$) :
1. If there is positive or negative correlation.

2. It gives strength and relationship between two variables.

Q-4) Given a data set where all the data points look negatively correlated, but actually are sets of points from different sources, which are positively correlated. How do you account for this?

—> It can be done using regression forest. Using multiple decision trees, it is possible to do both regression and classification on the same set of data points. Multiple decision trees can be combined in determining final output.

Q-5) You are assigned a new data analytics project. How will you begin with and what are the steps you will follow?

—> Firstly, finding objective of the problem. Then familiarise yourself with the dataset and random data exploration. Prepare the data for modelling, which includes task such as handling missing data. Final step is to implement the model and put out results.

Reference:

1. **Quantitative Finance Solutions - Senior Analyst [Deloitte], Sydney NSW**

Audit & Assurance - Quantitative Finance Solutions – Senior Analyst

- Agile working environment
- Rewards platform
- World-class learning and leadership programs

This is an excellent opportunity to join a team of intellectually curious and collaborative quantitative professionals.

What will your typical day look like?
In this role, we will leverage your knowledge and technical skills to understand client needs, design and develop ad hoc tools to provide better solutions to the client. Not only will you be involved in the design and development of complex and user-friendly models and tools, you will also manage stakeholders expectations and communicate with and report to internal and external stakeholders.

About the team
Sitting under Deloitte's Treasury Capital Markets (TCM) team, the Quantitative Finance Solutions team helps businesses and financial institutions navigate complex financial risks. No two days are the same in our team as you might work on challenges related to financial instruments or risk management on one day and design ad hoc tools for clients on another.

Enough about us, let's talk about you.
Your strong technical skills with solution design and development coupled with your investigative techniques, analytical and problem-solving mindset and holistic view will set you up for success in this role. You are someone with:

- Bachelor or higher degree in Computer Science, Statistics, Mathematics, Engineering/IT or a related field
- Strong quantitative programming skills, including the capability to design and develop sophisticated tools for, such as, data extraction and visualisation, machine learning / optimisation, predicative modelling.
- Sound knowledge and experience of two or three programming languages include but not limited to C#, R, Python, MATLAB, SAS, SQL, JavaScript, PHP and VBA.
- Knowledge and experience of one business intelligence software include but not limited to Power BI, Tableau and QlikView.
- Demonstrate knowledge of financial markets and financial instruments

2. **Data Analyst - Health Safety Environment [Boral], Sydney NSW**

Boral is an international building products and construction materials group with three strong divisions: the high-performing, well-positioned materials business of Boral Australia; the fast-growing, 50%-owned USG Boral interior linings joint venture in Asia, Australia and the Middle East; and Boral North America, a scaled and growing building products and fly ash business. With its headquarters in Sydney, Australia, Boral has approximately 17,000 full-time equivalent employees (including in JVs) working across over 700 operating sites in 17 countries.

With safety at the forefront of all that we do at Boral, our Health, Safety & Environment team is working to develop and channel predictive analytics to help us prevent incidents and injuries before they happen. To support this, we have created an opportunity ideally suited to an innovative and committed Graduate skilled in analytics and machine learning to undertake HSE analytics including benchmarking and management of HSE data.

As our Data Analyst Graduate, you will focus on diverse challenges and problems to solve across HSE while creating and effectively communicating findings to management as to how your insights create business impact.

To keep you challenged, you will be involved in:

- Analysis of data sets to develop custom models and algorithms to drive safety solutions
- Statistical analysis to determine trends, significant data relationships, validate assumptions, hypotheses and testing using statistical models
- Applying your expertise in quantitative analysis, data mining, and the presentation of data to see beyond the numbers
- Assist with establishing a Data analytics program aimed at developing a predictive analytics model
- Develop analytics reports which deep dive on HSE emergent risks
- Automation of Predictive analytics through the use of machine learning
- Establish digital tools to enhance information sharing across the business in order to deliver real time information based on predictive analytics

Bring your deep curiosity about how things work and love of problem solving along with your:

- Tertiary level qualification in data science or equivalent
- Knowledge of machine learning and artificial intelligence design
- Working knowledge of Google suite of tools for analytics (Google Cloud, Google Data Studio, Big Query, etc)

3. Data Analyst - Digital [carsales.com.au], Melbourne VIC

Got drive? You'll fit right in. In 1997 we tried something new - we've been doing it ever since. From humble start-up beginnings, today we're an ASX top 100 with world-class technology and advertising solutions. Not only are we the largest online automotive, motorcycle and marine classifieds business in Australia, we're growing across Latin America and Asia.

The role

Our Consumer Data Analytics & Science team is on the hunt for a driven Data Analyst looking for their next challenge. As a Data Analyst you'll drive outcomes for our consumer business. At carsales, data is a key part of the puzzle that gives us a better understanding of our customers' behaviour and helps our business to make decisions. This is an opportunity to work with and learn from extremely talented data analysts, engineers and scientists. You work to build reporting and predictive solutions.

What you'll do

- Analyse masses of clickstream data to identify audience trends, customer buying behaviour, and the impact of certain products.
- Develop and maintain predictive analytical capabilities around prediction, forecasting and segmentation.
- Own, improve and automate reporting and analytical processes, ensuring timely execution and continuous improvement.
- Approach tasks with the tools and languages and contribute to a developing analytical environment.
- Manage end-to-end analytical projects and develop in-depth, customer-based insights that help drive value for carsales' customers.

What we're looking for

- You'll be proficient in the usual data/statistical programming languages, including SQL, R and Python. Experience working with digital data or web analytics will be a bonus but isn't a must have.
- Experience in a digital environment working with web analytics such as Goggle analytics or Adobe will be highly sought after.
- A lover of all things data who is a whiz at framing and solving complex analytical questions.
- Experience in enterprise dashboarding/reporting tools (PowerBI, Tableau, etc) or visualization libraries.
- Someone who will work collaboratively with various teams to collect, collate and interpret our data, and then communicate the insights effectively to both technical and non-technical stakeholders.
- A multitasker who can effectively juggle multiple projects and priorities without dropping the ball.
- A can-do, proactive work ethic and a results driven, learning mindset – you're happy to get involved with any task required to get the job done.

4. **Data Scientist [Readify], Brisbane QLD**

Senior Data Analyst/Data Scientist | QLD

- **Work with some of the best people in the industry**
- **Keep your skills current with paid professional development**
- **Work with people who believe in quality solutions**

Our Brisbane team is seeking a Data Scientist/Data Analyst to join our expanding team.
At Readify, we help Australia's biggest organisations, government departments and not for profits manage and navigate shifts in technology. We only employ technically brilliant people to deliver custom Business Intelligence solutions, data platform and analytics services, application development, software deployment, IT consulting and managed services.
Our staff are industry superstars who regularly present locally and around the world!

About the Role:
As a Data Scientist/Data Analyst, you'll provide our clients with an extremely high level of technical expertise regarding Data Analytics and Visualisation solutions, using SQL Server, Teradata, Oracle and PowerBI, Tableau, QlikView.
You'll also be helping our customers utilising NoSQL offerings and big data solutions to optimise the design and implementation of their solutions. You'll be involved in the full lifecycle of BI and Data projects from attending client briefings, translating business requirements into the architecture and design of solutions, and following through to their implementation and deployment.

You'll also be doing highly technical work assisting our clients in optimising the scalability and performance of their existing solutions, and expanding on those solutions to add greater insights, visualisation and understanding of the data they are storing.
With a passion for technology, business and problem solving, you'll have the opportunity to develop your skills with the latest, cutting edge Microsoft and NoSQL technologies whilst working alongside and learning from talented Microsoft Most Valuable Professionals (MVPs).

As a Data Scientist/Data Analyst, your duties will include:

- Being proficient in all pillars of the Microsoft data platform offering, including Azure technologies.
- Becoming proficient in a range of NoSQL based offerings, such as graph databases and Azure HDInsights, and modelling and building solutions using those offerings.
- Configuring, Developing, Optimising, Testing, and Documenting analytical solutions developed and/or infrastructure implemented.
- Gathering Requirements from Business and IT Stakeholders.
- Delivering and installing suitable solutions for customers.
- Actively participating in local technical forums, such as User

You should have proven expertise with Microsoft data platform products in a similar role as a Data Scientist/Data Analyst, BI Consultant, SQL Server Developer or Architect, and you should have some level of working knowledge around big data solutions.

Ideally your skillset will also include:

- Advanced T-SQL and SQL Server 2012+, including Azure SQL
- Advanced R and/or Python skills
- Proven proficiency in statistics and statistical modelling
- Exposure to and understanding of Pig, Hive and Jaql
- PowerBI (Highly Beneficial)
- Tableau (Highly Beneficial)
- QlikView (Beneficial)
- SSAS Tabular Modelling (Beneficial)
- Data Analysis Expressions (DAX) (Beneficial)
- Azure HDInsights and/or Hadoop and related technologies (Highly Beneficial)
- Machine learning and/or data mining (Beneficial)
- IoT, data ingestion, and stream analytics (Beneficial)
- Working as part of a Scrum development team

More than any other skill, we value a willingness to learn and a positive attitude. You'll need to be able to adapt to a wide range of technologies in this role, but we'll support you every step of the way. That being said, we do expect strong communication skills.

About our Culture:
Our people enjoy working at Readify because we stay at the forefront of the latest technologies allowing you work with the best solutions for your customers allowing you to have the utmost confidence we deliver the best. You will work on challenging projects where you will never be bored. We recognise team and individuals for their hard work and our Professional Development Program is envied by our competitors. Your team will constantly help you grow and support you in your career with Readify.