

Job Role: Automotive Dealership Data Science Specialist

Brief Job Description: -

The individual at this job is responsible for designing and developing the visualization platforms for end-to-end visibility, after-sales analytics solutions and services, and customer retention strategies based on the customer database. He/She leads the development activities and guide the team on the technical front in analytics solutions and reviewing of code and supports a range of analytical, visualization, and predictive modelling projects along with project management.

Personal Attributes:

The person should have good technical and analytical skills, should have excellent interpersonal skills, communication, and presentation skills, and a good team player. The person should have project management skills, and also carry out prioritization of work and mentoring the budding engineers.

Applicable National Occupational Standards (NOS)

Compulsory NOS: -

1. Manage work and resources (Service)
2. Employability NOS (120 Hours)
3. Manage data extraction from the dealership entities
4. Prepare and analyse dealerships data by using analytical tools
5. Develop solutions for complex business problems in dealerships

Qualification Pack (QP) Parameters

Sector	Automotive
Sub sector	Service and Repair
Occupation	Technical Service and Repair
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	
Minimum Educational Qualification & Experience	B.E./B.Tech in the relevant field with 1 Year of relevant experience OR Pursuing 2nd year of M.E./M.Tech in the relevant field and continuous education OR Certificate-NSQF (Automotive Dealership Data Analysis Engineer Level 6/ Four wheeler Service Lead Technician Level 5) with 2 Years of relevant experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	
Minimum Job Entry Age	
Last Reviewed On	
Next Review Date	

Deactivation Date	
NSQC Approval Date	
Version	

ASC/N1465: Manage data extraction from the dealership entities

Description

This NOS unit is about performing tasks related to the collection and extraction of data from various dealership entities for answering relevant business questions.

Scope

The scope covers the following:

- Monitor assessment of project requirements
- Perform and monitor designing of project outline
- Support in selection of data integration platform to integrate the data from various department

Elements and Performance Criteria

Assessing project requirements

To be competent, the user/individual on the job must be able to:

- PC1.** Support during evaluation of the project requirements to be catered with either visualization platforms or analytics and predictive modelling solutions
- PC2.** Monitor and guide team during designing of data architecture for collection and extraction of data from various departments using connectors and platforms
- PC3.** Identify the people required to execute the business analytics project requirements
- PC4.** Prepare the technology stack for the front end and back end of the analytics solution
- PC5.** Assess all organizational processes related to the use of data and analytics
- PC6.** Check that the existing setup is capable or not for data collection and analysis

Perform and monitor designing of project outline

To be competent, the user/individual on the job must be able to:

- PC7.** Support and prepare an outline of the project execution taking the business questions into consideration
- PC8.** Identify appropriate data attributes to be extracted from various departments
- PC9.** Prepare the timeline and resource requirements
- PC10.** Manage project by using appropriate project tracking tools and task prioritization for all team members
- PC11.** Obtain the necessary approvals within the organization for data collection and extraction from various departments

Support in selection of data integration platform to integrate the data from various department

To be competent, the user/individual on the job must be able to:

- PC12.** Survey and identify the existing data integration platforms considering the application integration, data integration and API (Application Program Interface) management criterion.
- PC13.** Select the data integration platform with the capabilities like- data transformation, application connectors, file processing, routing, orchestration, event handling, stream processing, API management, no-vendor lock-in.
- PC14.** Design and create a data warehouse for easy consumption of data points for data analysts.
- PC15.** Develop data pipelines using connectors to populate the data in the data warehouse

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Organizational policies, procedures, and guidelines that relate to designing and maintaining databases
- KU2.** Organizational policies and procedures for sharing data
- KU3.** Organizational policies and procedures for documenting databases architectures and backup mechanisms
- KU4.** Who to involve while designing and developing the database architecture and pipelines for the solution
- KU5.** Range of standard platforms and tools available and how to use them
- KU6.** Database connectors and application connectors for application-cloud communications
- KU7.** Updated internal and external cybersecurity regulations
- KU8.** Data warehouse fundamentals, planning, processes, schemes, terms and SQL queries.

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. communicate effectively at the workplace
- GS2. attentively listen and comprehend the information given by the process managers
- GS3. write observations and any work-related information in English/regional language
- GS4. recognise a workplace problem and take suitable action
- GS5. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS6. complete the assigned tasks in a timely and efficient manner
- GS7. coordinate with shop floor workers and team for installing the new systems efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assessing project requirements</i>	15	15		7
PC1. Support during evaluation of the project requirements to be catered with either visualization platforms or analytics and predictive modelling solutions	3	3		1
PC2. Monitor and guide team during designing of data architecture for collection and extraction of data from various departments using connectors and platforms	2	2		1
PC3. Identify the people required to execute the business analytics project requirements	2	2		1
PC4. Prepare the technology stack for the front end and back end of the analytics solution	2	2		1
PC5. Assess all organizational processes related to the use of data and analytics	2	2		1
PC6. Check that the existing setup is capable or not for data collection and analysis	4	4		2
<i>Perform and monitor designing of project outline</i>	16	16		9
PC7. Support and prepare an outline of the project execution taking the business questions into consideration	3	3		2
PC8. Identify appropriate data attributes to be extracted from various departments	3	3		2
PC9. Prepare the timeline and resource requirements	3	3		2
PC10. Manage project by using appropriate project tracking tools and task prioritization for all team members	4	4		2
PC11. Obtain the necessary approvals within the organization for data collection and extraction from various departments	3	3		1
<i>Support in selection of data integration platform to integrate the data from various department</i>	9	9		4
PC12. Survey and identify the existing data integration platforms considering the application integration, data integration and API (Application Program Interface) management criterion.	2	2		1
PC13. Select the data integration platform with the capabilities like- data transformation, application connectors, file processing, routing, orchestration, event handling, stream processing, API management, no-vendor lock-in.	3	3		1

PC14. Design and create a data warehouse for easy consumption of data points for data analysts.	2	2		1
PC15. Develop data pipelines using connectors to populate the data in the data warehouse	2	2		1
NOS Total	40	40	-	20

ASC/N1466: Prepare and analyse dealerships data by using analytical tools

Description

This NOS unit is about performing exploratory data analysis on the data extracted, deciding which data attributes are required for analytics and analysing the extracted attributes using excel/ open-source python libraires.

Scope

The scope covers the following:

- Identify business goals for which data need to be analysed,
- Support in preparation of data
- Perform statistical analysis of data

Elements and Performance Criteria

Identify business goal for which data need to be analysed

To be competent, the user/individual on the job must be able to:

- PC1.** Define business problems and business goals which can be achieved using available datasets from the manager
- PC2.** Select the relevant source of data to define dealership business goal
- PC3.** Validate the criterion in the business problem with domain person in dealerships

Support in preparation of data

To be competent, the user/individual on the job must be able to:

- PC4.** Support and create a set of metadata for the selected dataset
- PC5.** Identify the attributes or columns in the datasets which are most significant from analysis perspective
- PC6.** Perform exploratory data analysis to check for missing or duplicate data

Perform statistical analysis of data

To be competent, the user/individual on the job must be able to:

- PC7.** Perform descriptive statistical analysis on the data by following SOP
- PC8.** Perform inferential statistics analysis on the data by following SOP
- PC9.** Prepare list of highly correlated attributes
- PC10.** Find correlation amongst the selected attributes of the data and plot their heatmap

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Organizational policies, procedures, and guidelines that relate to designing and maintaining databases
- KU2.** Organizational policies and procedures for sharing data
- KU3.** Organizational policies and procedures for documenting databases architectures and backup mechanisms
- KU4.** Descriptive and Inferential statistics for creating charts and predictive analytics modelling
- KU5.** Types of data wrangling and data cleaning methods to create visualization
- KU6.** Suitable documentation of the organization for the metadata creation
- KU7.** Aggregate the charts to create a dashboard to address the business problem
- KU8.** Addition of filters and chart tips to make the dashboard interactive

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. communicate effectively at the workplace

GS2. attentively listen and comprehend the information given by the process managers

GS3. write observations and any work-related information in English/regional language

GS4. recognise a workplace problem and take suitable action

GS5. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS6. complete the assigned tasks in a timely and efficient manner

GS7. coordinate with shop floor workers and team for installing the new systems efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify business goal for which data need to be analysed</i>	11	11		6
PC1. Define business problems and business goals which can be achieved using available datasets from the manager	3	3		2
PC2. Select the relevant source of data to define dealership business goal	4	4		2
PC3. Validate the criterion in the business problem with domain person in dealerships	4	4		2
<i>Support in preparation of data</i>	16	16		7
PC4. Support and create a set of metadata for the selected dataset	6	6		3
PC5. Identify the attributes or columns in the datasets which are most significant from analysis perspective	5	5		2
PC6. Perform exploratory data analysis to check for missing or duplicate data	5	5		2
<i>Perform statistical analysis of data</i>	13	13		7
PC7. Perform descriptive statistical analysis on the data by following SOP	3	3		2
PC8. Perform inferential statistics analysis on the data by following SOP	3	3		2
PC9. Prepare list of highly correlated attributes	3	3		1
PC10. Find correlation amongst the selected attributes of the data and plot their heatmap	4	4		2
NOS Total	40	40	-	20

ASC/N1467: Develop solutions for complex business problems in dealerships

Description

This NOS unit is about developing machine learning models using the extracted data and making predictive analytics solutions for complex business problems in dealerships. It also involves project management using project tracking tools and task prioritization for all team members.

Scope

The scope covers the following:

- Execute training phase in the machine learning project lifecycle
- Execute testing phase in the machine learning project lifecycle
- Deployment of the developed analytics model solution into sales and support
- Deployment of the analytics model solution into production line

Elements and Performance Criteria

Execute training phase in the machine learning project lifecycle

To be competent, the user/individual on the job must be able to:

- PC1.** Select and install relevant libraries and tools for model making
- PC2.** Split and prepare the dataset into training, validation and testing sets
- PC3.** Configure hyperparameters for the selected model, establish the training pipelines and execute the training phase
- PC4.** Store the model and network parameters to be used in the testing phase
- PC5.** Prevent underfitting and overfitting of the model
- PC6.** Solve the imbalanced dataset problem when the samples from minority class are very few
- PC7.** Evaluate the training performance of the machine learning model for training and validation accuracy

Execute testing phase in the machine learning project lifecycle

To be competent, the user/individual on the job must be able to:

- PC8.** Test the models with testing datasets
- PC9.** Ensure the inference time per sample is as per the business requirement
- PC10.** Evaluate the testing performance of the machine learning model for testing accuracy

Deployment of the developed analytics model solution into sales and support

To be competent, the user/individual on the job must be able to:

- PC11.** Develop a front-end application to fetch inputs from the user and consume developed model for inference
- PC12.** Verify the sales and support performance of the machine learning model
- PC13.** Analyse performance of the machine learning model and prepare feedback on the wrong predictions
- PC14.** Implement the feedback back to the training phase and retrain the machine learning model

Deployment of the analytics model solution into production line

To be competent, the user/individual on the job must be able to:

- PC15.** Select relevant libraries and machine learning operations (MLOPS) tools and packages for deploying the analytics model solution into sales and support
- PC16.** Install the selected libraries and tools for machine learning operations tasks

- PC17.** Setup the continuous training, continuous integration, and continuous delivery pipelines for the developed machine learning models
- PC18.** Monitor the analytics model solution performance in the deployment phase
- PC19.** Carry out commissioning of the end-to-end system

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Organizational policies, procedures, and guidelines that relate to designing and maintaining databases
- KU2.** Organizational policies and procedures for sharing data
- KU3.** Organizational policies and procedures for documenting databases architectures and backup mechanisms
- KU4.** Who to involve while developing the different stages in the machine learning lifecycle
- KU5.** Descriptive and inferential statistics for creating charts and predictive analytics modelling
- KU6.** Types of data wrangling and data cleaning methods to create visualization
- KU7.** Suitable documentation of the organization for the metadata creation
- KU8.** Updated internal and external network regulations
- KU9.** How to perform network assessments
- KU10.** How to diagnose and resolve underfitting, overfitting and imbalanced dataset issues
- KU11.** How to use different machine learning algorithms for specific functions like regression, classification and clustering
- KU12.** How to use python programming constructs for developing machine learning models using open-source libraries like for example, scikit-learn
- KU13.** How to develop necessary front end to consume the developed analytics solution
- KU14.** How to use MLOPS libraries and frameworks to ensure continuous training and deployment.
- KU15.** How to implement MLOPS in a cloud-based platform if required
- KU16.** How to make an API interface for the developed machine learning model in Python using REST API framework

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate effectively at the workplace
- GS2.** attentively listen and comprehend the information given by the process managers
- GS3.** write observations and any work-related information in English/regional language
- GS4.** recognise a workplace problem and take suitable action
- GS5.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS6.** complete the assigned tasks in a timely and efficient manner
- GS7.** coordinate with shop floor workers and team for installing the new systems efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Execute training phase in the machine learning project lifecycle</i>	16	16		7
PC1. Select and install relevant libraries and tools for model making	2	2		1
PC2. Split and prepare the dataset into training, validation and testing sets	3	3		1
PC3. Configure hyperparameters for the selected model, establish the training pipelines and execute the training phase	3	3		1
PC4. Store the model and network parameters to be used in the testing phase	2	2		1
PC5. Prevent underfitting and overfitting of the model	2	2		1
PC6. Solve the imbalanced dataset problem when the samples from minority class are very few	2	2		1
PC7. Evaluate the training performance of the machine learning model for training and validation accuracy	2	2		1
<i>Execute testing phase in the machine learning project lifecycle</i>	5	5		3
PC8. Test the models with testing datasets	2	2		1
PC9. Ensure the inference time per sample is as per the business requirement	1	1		1
PC10. Evaluate the testing performance of the machine learning model for testing accuracy	2	2		1
<i>Deployment of the developed analytics model solution into production</i>	8	8		4
PC11. Develop a front-end application to fetch inputs from the user and consume developed model for inference	2	2		1
PC12. Verify the production performance of the machine learning model	2	2		1
PC13. Analyse performance of the machine learning model and prepare feedback on the wrong predictions	2	2		1
PC14. Implement the feedback back to the training phase and retrain the machine learning model	2	2		1
<i>Deployment of the analytics model solution into production line</i>	11	11		6
PC15. Select relevant libraries and machine learning operations (MLOPS) tools and packages for deploying the analytics model solution into	2	2		1

production line				
PC16. Install the selected libraries and tools for machine learning operations tasks	2	2		1
PC17. Setup the continuous training, continuous integration, and continuous delivery pipelines for the developed machine learning models	3	3		2
PC18. Monitor the analytics model solution performance in the deployment phase	2	2		1
PC19. Carry out commissioning of the end-to-end system	2	2		1
NOS Total	40	40	-	20