

# MR. MAHMOUD HASSAN

## Position Description

Data Scientists and Data Analysts

## Professional Profile

Results-oriented technology professional with expertise in **data science, AI, cloud technologies, and enterprise systems**, backed by a Master's in Technology Innovation Management and a strong foundation in computer science and statistics. Certified in **Oracle Cloud Infrastructure, Generative AI, Machine Learning, Oracle APEX, MySQL Heatwave, Tableau, Power BI, and Microsoft Copilot**, with proven ability to design and implement **data-driven, cloud-based, and enterprise-scale solutions**. Skilled in **Python, SQL, C#, Linux administration, and ITIL-based service management**, with hands-on experience in **business intelligence, data visualization, and enterprise cloud applications (CX, HCM, SCM)**. Committed to leveraging emerging technologies to **optimize processes, enhance analytics, and drive digital transformation**.

## Core Skills:

Data Science · AI & Generative AI · Cloud Development · Business Intelligence · Enterprise Systems · SQL & Databases · Linux Administration · Project Management · ITIL

## Language

English

## Security Clearance

Level: Secret Level II  
File No: 95-65-3882  
Expiry: 16-Aug-2029

## Education

- B.Sc. in Computer Science, Ain Shams University, Egypt 1986
- Postgraduate diploma in statistics, Institute of Statistical Studies and Research, Egypt 1991
- Master of Engineering in Technology Innovation Management, Carleton University, 2017

## Professional Development

- Oracle Cloud Analytics 2025 Certified Professional.
- Oracle Cloud Infrastructure 2025 Certified Data Science Professional.
- Oracle Autonomous Database Cloud 2025 Certified Professional.
- Oracle Cloud Infrastructure 2025 Certified Foundations Associate.
- Oracle AI Vector Search Professional.
- Oracle Cloud Infrastructure AI Foundations.
- Oracle Cloud Infrastructure 2024 Generative AI Certified Professional.
- Oracle Machine Learning using Autonomous Database 2023 Associate.
- Data Science · Machine Learning · Python (Programming Language)
- Linux System Administration · CLI

- Microsoft Power BI
- Tableau Fundamentals.
- Tableau Desktop II: Intermediate.
- Analytics Best Practices with Tableau.
- Oracle APEX Cloud Developer Certified Professional.
- MySQL Heatwave Implementation Certified Associate.
- Oracle Cloud Success Navigator Essentials
- Oracle Fusion Cloud Applications CX Process Essentials Certified
- Oracle Fusion Cloud Applications HCM Process Essentials Certified
- Oracle Fusion Cloud Applications HCM Process Essentials Certified
- Oracle Fusion Cloud Applications SCM Process Essentials Certified
- Microsoft Copilot for Productivity by Microsoft and LinkedIn
- Artificial Intelligence for Business · Microsoft PowerPoint , Microsoft Outlook, Microsoft Excel · Data Analysis, Prompt Engineering · Artificial Intelligence for Business and AI Productivity · AI Prompting.
- Office 365 · Microsoft Copilot
- Cert Prep: Project Management Professional (PMP)
- C#, SQL Server and completion Stack Skills
- Implementing a Data Warehouse with Microsoft SQL Server 2012
- ORACLE Forms Developer Release 6/6i (OCP).
- ORACLE 9i Database Administrator Certified Professional (OCP).
- ITIL V3 Foundation.

## Professional Experience

### Project 1

Department of National Defence (DND)

Jul. 2022–Current

*Data Analyst*

Responsibilities:

- 1.1 Collected, validated, and analyzed data to evaluate the technical and economic feasibility of systems such as **PRAC (Property Record Amendment Certificate)** and **HRRT (Human Resource Request Tracking)**.
- 1.2 Translated **functional requirements** into **data models, workflows, and system specifications**, ensuring accurate information flow and business alignment.
- 1.3 Designed and optimized **database structures, procedures, and queries** to enable efficient data retrieval, transformation, and reporting in **SQL/PL-SQL**.
- 1.4 Developed and executed **ad-hoc queries, statistical reports, and error detection analytics** to support decision-making and improve data quality.
- 1.5 Applied **data analysis techniques** to assess business rules, triggers, and workflows, identifying inefficiencies and recommending improvements.
- 1.6 Conducted **risk analysis and impact assessments**, evaluating information assets, probabilities, and potential business impacts; proposed **data-driven mitigation strategies**.

- 1.7 Built and maintained **dashboards, reports, and analytics solutions** using SQL and database tools
- 1.8 to measure the effectiveness of data collection and business processes.
- 1.9 Partnered with stakeholders to **document user requirements** in clear specifications, capturing both functional and non-functional aspects to inform analytics and reporting.
- 1.10 Implemented **data management best practices** such as data archiving, purging, and monitoring to improve database performance and reporting reliability.
- 1.11 Integrated data from APIs and external tools to expand reporting capabilities and support simulation/training systems with consistent, compatible datasets.
- 1.12 Supported **resource management analytics** by defining metrics for resource allocation, scheduling, tracking, and reporting.
- 1.13 Diagnosed and resolved **database performance and data access issues**, ensuring timely delivery of analytical outputs in high-traffic environments.
- 1.14 Contributed to Agile development cycles by **analyzing data workflows, validating requirements, and testing analytics features** for integration into enterprise applications.

## Project 2

Department of National Defence (DND)

Aug. 2021–Jun. 2022

### *Data Analytics*

#### Responsibilities:

- 2.1 Gathered, analyzed, and validated business and functional requirements to assess the technical and economic feasibility of proposed systems, translating them into data models, workflows, and specifications.
- 2.2 Designed and developed database schemas, data models, and entity-relationship diagrams to represent systems such as ADAM and resource management applications, ensuring accurate representation of data flows and business processes.
- 2.3 Built and optimized SQL/PL-SQL procedures, functions, triggers, indexes, and views to support reporting, data analysis, and high-volume data transactions.
- 2.4 Created and maintained dashboards, reports, and analytics outputs to measure effectiveness of data collection efforts, detect anomalies, and provide actionable insights.
- 2.5 Conducted data analysis and error detection reporting to improve data quality, reduce inefficiencies, and enhance decision-making across projects.
- 2.6 Supported data integration efforts by evaluating external tools, APIs, and web services to extend reporting and analytics capabilities.
- 2.7 Collaborated with business stakeholders and technical teams to document requirements, design specifications, and data dictionaries, ensuring alignment between business needs and analytics deliverables.
- 2.8 Performed database performance monitoring, data quality checks, and risk analysis, recommending mitigation strategies to improve system resilience and reporting reliability.
- 2.9 Contributed to Agile development cycles by delivering data-driven insights, reports, and system enhancements, integrating analytics into enterprise workflows.
- 2.10 Delivered ad-hoc analysis and queries to support resource allocation, training schedules, simulation data, and management reporting.

## Project 3

Department of National Defence (DND)

Jan. 2021–Jul.2021

### *Data Analytics*

- 3.1 Designed, developed, and deployed interactive Tableau dashboards (Inventory Dashboard and COVID-19 Status Dashboard) for multiple departments within the Department of National Defence (DND), enabling real-time insights and multi-level data access across sites.
- 3.2 Conducted data analysis and validation on datasets imported from SQL Server, ensuring data

accuracy, integrity, and readiness for visualization.

- 3.3 Developed robust ETL processes and performed data cleaning and transformation to prepare large datasets for reporting and analytics.
- 3.4 Utilized SQL and PL/SQL to generate analytical reports, assess data collection effectiveness, detect anomalies, and enhance reporting accuracy.
- 3.5 Created and optimized stored procedures, triggers, functions, views, joins, and indexes to improve query performance and support analytical reporting.
- 3.6 Diagnosed and resolved database performance and access issues, improving system reliability and response time for analytical queries.
- 3.7 Collaborated in cross-functional teams to translate business requirements into technical data solutions and developed design and estimation documents supporting data-driven decision-making.
- 3.8 Conducted data modeling and process analysis to define information flows, business rules, and data dependencies for analytics and reporting systems.
- 3.9 Developed data dictionaries and documentation to ensure clear understanding of database structures, fields, and analytical relationships.
- 3.10 Automated data integration and migration between legacy and new systems, improving data accessibility and consistency across platforms.
- 3.11 Implemented resource management and tracking solutions, integrating analytical databases with enterprise applications for scheduling, training, and performance tracking.
- 3.12 Designed and executed data collection frameworks to capture operational, simulation, and training metrics for continuous monitoring and analysis.
- 3.13 Collaborated with end-users to define KPIs, reporting needs, and visualization requirements, ensuring dashboards provided actionable and relevant insights.

#### **Project 4**

##### **Department of National Defence (DND)**

Jan 2020–Dec.2020

##### *Data Analytics*

##### Responsibilities:

- 4.1 Designed, developed, and maintained data-driven applications and analytics solutions using Oracle Fusion Middleware 12C, Oracle Forms, and Oracle Reports, aligning with Agile SDLC methodologies to integrate system design, workflows, and testing.
- 4.2 Led the migration of NTMS (National Telecommunication Management System) from Oracle Forms and Reports 6i to 12C, ensuring compatibility, data integrity, and enhanced performance.
- 4.3 Designed and implemented high-performance database procedures and interfaces for efficient data loading, retrieval, and analytics in a heavy-traffic, web-facing Oracle environment.
- 4.4 Developed and optimized PL/SQL scripts, functions, triggers, and stored procedures to automate reporting, improve query efficiency, and enable advanced data analysis.
- 4.5 Built data models and Entity Relationship Diagrams (ERDs) using Tableau and MS Visio, visualizing complex system data flows for NTMS and FEAMS, supporting data architecture modernization.
- 4.6 Created conceptual, logical, physical, and dimensional data models and data dictionaries to support analytics, reporting, and system design documentation.
- 4.7 Developed data validation and data quality checks to ensure the accuracy, completeness, and reliability of datasets used for analysis and reporting.
- 4.8 Used SQL and PL/SQL to extract, transform, and analyze data, produce performance reports, identify data anomalies, and validate data collection processes.
- 4.9 Collaborated with stakeholders to analyze business requirements and translate them into data solutions using Oracle APEX and Tableau dashboards for operational and strategic insights.
- 4.10 Implemented unit, integration, and performance testing for analytical applications, validating data accuracy, system functionality, and reliability under peak load conditions.
- 4.11 Administered and configured Oracle WebLogic Server 12C, performing installations, patches, and upgrades to support web services and data integration applications.
- 4.12 Conducted risk analysis and data impact assessments to evaluate the likelihood and business

- consequences of potential data issues and proposed mitigation strategies.
- 4.13 Performed root-cause analysis using database error and query logs, identifying performance bottlenecks and improving query optimization through indexing and schema redesign.
- 4.14 Ensured data connectivity and interoperability using ODBC/JDBC connections for integrating databases with external analytics and visualization tools.
- 4.15 Developed data validation rules and continuous quality checks to maintain consistency and accuracy across enterprise datasets.
- 4.16 Created technical documentation and user guides to support knowledge sharing, system maintenance, and analytics adoption across departments.
- 4.17 Provided deployment and integration guidance for the FEAMS analytical solution built on Oracle Forms and APEX, ensuring seamless transition to production environments.
- 4.18 Monitored and maintained database performance post-deployment, collecting feedback and addressing data access issues to maintain optimal performance.

## Project 5

### ToCognition

January 2015–Dec 2019

*Data Analytics/Data Engineer/BI Developer*

*(65 months)*

#### Responsibilities:

- 5.1 Designed, developed, and maintained data-driven applications using Oracle APEX 19.2, integrating system design, data workflows, and analytics under Agile SDLC methodology.
- 5.2 Conducted data analysis and feasibility studies to evaluate proposed systems, leading to well-documented functional and system design specifications.
- 5.3 Translated business requirements into data solutions, creating detailed design and estimation documents to support the analytics development lifecycle.
- 5.4 Collaborated with business analysts and cross-functional teams to define, document, and deliver analytics and reporting solutions following IT methodology standards.
- 5.5 Provided user and application support, including troubleshooting, data issue resolution, and post-implementation performance validation for analytical applications.
- 5.6 Developed PL/SQL procedures, functions, and triggers to implement business logic and automate analytical workflows using tools such as TOAD, SQL Developer, and SQL\*Plus.
- 5.7 Created and managed **Windows batch jobs** to automate SQL-based data processing tasks.
- 5.8 Built data models and ER diagrams (using MS Visio) to visualize system data flow and relationships, supporting database and analytics design.
- 5.9 Designed, analyzed, and developed data interfaces and stored procedures to process large data volumes efficiently in high-traffic web applications.
- 5.10 Created ad-hoc SQL queries and custom analytical reports to support operational and business intelligence requirements.
- 5.11 Developed financial and operational reports using Oracle BI tools, Hyperion Financial Reporting, and Web Analysis, enabling management to make data-informed decisions.
- 5.12 Designed and optimized logical and physical databases for reporting, generating financial and user reports in CSV, PDF, XLS, and TXT formats.
- 5.13 Created and optimized database objects (views, indexes, triggers, joins, stored procedures) to improve performance and scalability.
- 5.14 Implemented data validation rules and data quality checks to ensure the reliability and accuracy of analytical datasets.
- 5.15 Optimized information exchange between databases and systems, improving data flow and reporting performance.
- 5.16 Conducted system integration testing, unit testing, and database performance analysis, ensuring compliance with design standards and performance targets.
- 5.17 Implemented security measures for data systems, including encryption, strong password policies, and regular patch updates to mitigate vulnerabilities.
- 5.18 Supported production databases, diagnosing and resolving access and performance issues quickly

- to maintain uptime and data integrity.
- 5.19 Developed and maintained technical documentation, user guides, and system manuals to support ongoing use and maintenance of data applications.
- 5.20 Provided training and technical support for users and administrators on data management systems and BI tools.
- 5.21 Collaborated on data migration projects, mapping and synchronizing data structures between systems to ensure consistency and continuity.
- 5.22 Worked extensively with relational and multidimensional databases, including finance data cubes and models, to support advanced financial analysis and reporting.
- 5.23 Implemented security best practices to safeguard sensitive financial and operational data across multiple systems and user levels.

## **Project 6**

### **SIMUTECH Multimedia Inc.**

April 2012-December 2014

*Data Analytics, Reporting, and Database Development*

*(33 months)*

#### **Responsibilities:**

- 6.1 Designed, developed, and maintained data-driven applications using Oracle APEX and C#, following Waterfall SDLC principles to meet business and technical requirements.
- 6.2 Collaborated with business analysts and architects to understand and translate business requirements into effective analytical and reporting solutions.
- 6.3 Developed multiple analytical systems such as Troubleshooting Electrical Circuits (TEC), Control Circuits (TCC), Motor Circuits (TMC), and Integrated Circuits (TIC1/TIC2) using C#, integrating these with Oracle databases for real-time analytics and visualization.
- 6.4 Produced business intelligence reports and parameterized dashboards to support decision-making and operational performance tracking.
- 6.5 Designed and implemented client-server and web-based applications utilizing Oracle RDBMS and Oracle Application Server 9i/10g, ensuring optimal data processing efficiency.
- 6.6 Created Entity Relationship Diagrams (ERDs), data flow diagrams, and schema designs to map database structure and support accurate data modeling and report development.
- 6.7 Wrote complex SQL views, stored procedures, and PL/SQL functions for reporting, batch processing (month-end/year-end), and performance optimization.
- 6.8 Performed data analysis and feasibility studies, evaluating technical and economic aspects of proposed systems to inform design and implementation.
- 6.9 Integrated user interfaces with report servers and automated report generation through subscriptions and scheduling, improving efficiency in data delivery.
- 6.10 Designed and maintained conceptual, logical, and physical data models, data dictionaries, and dimensional data structures for analytics and reporting.
- 6.11 Monitored and tuned database performance, adjusting cache configurations, query optimization, and indexing strategies to enhance data retrieval speed and system responsiveness.
- 6.12 Diagnosed and optimized slow or resource-intensive queries using performance analysis tools, significantly improving query execution times.
- 6.13 Managed report servers for BI report generation, data-driven subscriptions, and user access, ensuring timely and accurate delivery of reports.
- 6.14 Created and enhanced financial and comparative reports for executive and departmental review, providing actionable insights into organizational performance.
- 6.15 Automated data-driven report distribution and integrated reporting systems with external tools, ensuring consistency across platforms.
- 6.16 Implemented routine database maintenance tasks (backups, indexing, data purging) to maintain system stability and optimize performance.
- 6.17 Regularly monitored training and resource management systems for data quality, ensuring consistency across databases and analytical outputs.
- 6.18 Maintained up-to-date database documentation, including data dictionaries and ER diagrams,

- reflecting all schema and system changes.
- 6.19 Provided customization, debugging, and enhancement support for Oracle APEX applications and reporting systems.
- 6.20 Developed and implemented data communication mechanisms between Oracle databases and external systems using standard protocols (e.g., ODBC/JDBC).
- 6.21 Ensured data accuracy, integrity, and availability by enforcing database standards, data validation rules, and continuous monitoring practices.
- 6.22 Supported end users and teams by developing user-friendly interfaces, training materials, and user guides to enhance analytical capability and system usability.

## **Project 7**

**Vitesse Canada Inc, Ottawa, ON**

January 2010 – March 2012

*Data Engineering, ETL Development, and System Integration*

*(27 months)*

### **Responsibilities:**

- 7.1 Designed, developed, and implemented Oracle Forms and Reports 12c applications, performing unit testing and deployment for enterprise-grade data management systems.
- 7.2 Administered and maintained databases across Oracle PL/SQL, MySQL, and MS SQL Server environments for platforms such as Vitesse and Ottawa Talent Initiative.
- 7.3 Analyzed functional and technical requirements, ensuring alignment with business needs, data flow, and performance goals.
- 7.4 Developed estimation, design, and technical documentation to define scope, architecture, and implementation strategies for database and reporting projects.
- 7.5 Provided end-to-end application maintenance, enhancements, and support under change requests or full-scale project authorizations.
- 7.6 Implemented robust backup and recovery procedures prior to production changes to ensure data integrity and continuity.
- 7.7 Performed system integration testing, troubleshooting, and post-implementation validation for new and modified applications.
- 7.8 Created and optimized ETL pipelines and SSIS packages for extracting, transforming, and loading data from XML files, flat files, and relational sources into data warehouses.
- 7.9 Developed XML schemas to structure and store complex datasets efficiently.
- 7.10 Designed and developed database procedures and interfaces to handle large data volumes in high-traffic, web-facing environments, ensuring scalability and low latency.
- 7.11 Configured database replication, clustering, and load balancing for high availability (HA) and disaster recovery (DR) solutions.
- 7.12 Implemented data security measures, including encryption, authentication, and role-based authorization to safeguard sensitive information.
- 7.13 Created ER diagrams and data models using MS Visio for data architecture visualization and system planning.
- 7.14 Wrote PL/SQL scripts, procedures, and triggers for business rules and data processing using TOAD, SQL Developer, and SQL\*Plus.
- 7.15 Automated data processes using Windows batch jobs and Perl scripts, enhancing operational efficiency and reliability.
- 7.16 Developed C# applications, including an integrated phone center software, integrating front-end systems with database back ends.
- 7.17 Installed and configured Microsoft Team Foundation Server (TFS) for collaborative development, source control, and team coordination.
- 7.18 Administered domain names, DNS servers, and SSL certificates, ensuring secure and reliable system access.
- 7.19 Diagnosed and resolved network and application security issues, optimizing connectivity and access controls.

- 7.20 Provided technical support and troubleshooting for internal and external users, maintaining high system of uptime and responsiveness.
- 7.21 Tested and validated training and simulation systems, ensuring accuracy and fidelity to real-world conditions.
- 7.22 Optimized resource scheduling and conflict resolution processes to maximize system utilization and team productivity.
- 7.23 Monitored and maintained system compatibility as external tools or databases evolved, ensuring seamless integration and performance.
- 7.24 Supported major technical issue resolution involving core company software, demonstrating strong problem-solving and analytical skills.

## **Project 8**

**Ministry of Economy, United Arab Emirates (UAE)**

*Data analytics, Database development, and migration*

Jan 1995 – December 2009

(178 months)

### Responsibilities:

- 8.1 Migrated legacy Oracle applications (Forms and Reports 6i) to Oracle APEX and Oracle Forms 9i/10g, modernizing user interfaces and improving performance.
- 8.2 Developed and customized forms, reports, and dashboards using Oracle Forms, Reports, and APEX, supporting multiple departments and functional domains.
- 8.3 Designed and implemented data-driven applications for HR, finance, and research operations, integrating PL/SQL, SQL\*Loader, and Oracle Database back ends.
- 8.4 Created customized menus, screens, and output reports to streamline workflows and enhance usability for end users.
- 8.5 Designed and developed statistics and reporting applications using MS Access and Oracle, automating data processing for research and operational needs.
- 8.6 Conducted data conversion and statistical analysis of national research and census data using SPSS, producing analytical reports and visual summaries.
- 8.7 Defined and documented system methods, procedures, and database schemas for both small-scale systems and sub-systems of larger enterprise applications.
- 8.8 Analyzed and validated user requirements, ensuring technical feasibility and compliance with business objectives.
- 8.9 Created database structures, including tables, relationships, keys, and constraints, and developed PL/SQL triggers, procedures, and functions for automation and data integrity.
- 8.10 Designed and optimized database interfaces and data loading processes to handle high-volume data transactions in web-facing environments.
- 8.11 Worked with relational and multidimensional databases, including financial cubes and models, for advanced reporting and analytics.
- 8.12 Built stored procedures, functions, and indexes to improve data retrieval efficiency and maintain system performance.
- 8.13 Designed logical and physical databases for reporting tools, generating recurring and ad hoc financial reports in multiple formats (CSV, PDF, TXT, XLS).
- 8.14 Created data models and ERDs using MS Visio, defining entity relationships and improving data architecture clarity.
- 8.15 Developed business intelligence (BI) reports using Oracle BI Tools, including Hyperion Financial Reporting and Web Analysis.
- 8.16 Provided customization, debugging, and enhancement support for financial and HR business applications.
- 8.17 Built and maintained MS Access databases, designing tables, queries, forms, and reports to support operational analytics and reporting needs.



## **Technical Skills**

### **Data Analytics & Visualization**

- Tableau (Fundamentals, Intermediate, Analytics Best Practices)
- Microsoft Power BI
- Oracle Analytics / Oracle BI / Hyperion Financial Reporting
- SPSS Statistical Analysis
- Microsoft Excel (Advanced Data Analysis, Power Query, PivotTables)

### **Programming & Data Science**

- Python (Pandas, NumPy, Matplotlib, scikit-learn, Data Wrangling)
- SQL / PL/SQL (Advanced Query Optimization, Stored Procedures, Triggers)
- C#, CLI, Shell Scripting
- R (basic statistical analysis and data visualization)

### **Databases & Data Engineering**

- Oracle Database (9i–19c), MySQL, SQL Server
- Oracle APEX, Oracle Forms & Reports 6i/9i/10g/12c
- Oracle Autonomous Database / MySQL HeatWave
- Data Warehousing (ETL, SSIS, SQL\*Loader, Data Modeling, Star Schema)
- Database Design, Performance Tuning, Indexing, and Query Optimization

### **Cloud Platforms & AI**

- Oracle Cloud Infrastructure (OCI):
  - Data Science Professional
  - Generative AI Certified Professional
  - AI Foundations, AI Vector Search, Machine Learning on Autonomous Database
- Microsoft Azure (Power BI and Copilot for Productivity)
- Oracle Fusion Cloud (HCM, SCM, CX Process Essentials)

### **Business Intelligence & Reporting**

- Oracle BI Suite, Oracle APEX Dashboards
- Tableau and Power BI Report Automation
- Microsoft Excel BI, KPI Reports, and Data Visualization

### **Tools & Technologies**

- TOAD, Oracle SQL Developer, MS Visio, MS Access
- Oracle WebLogic Server (Install, Configure, Patch, and Administer)
- Git, Microsoft Team Foundation Server, Cron Jobs, Unix Shell Scripting

### **Statistical & Analytical Methods**

- Descriptive and Inferential Statistics
- Predictive Modeling & Trend Analysis
- Data Cleaning, Feature Engineering, and Validation
- Business Process & Feasibility Analysis

### **Other Certifications & Frameworks**

- ITIL v3 Foundation
- PMP Preparation (Project Management Fundamentals)
- Agile & SDLC Methodologies