MetaOPT

Making the uncertain more certain

Model Inventory

JAS-ANZ

APPROVED COMPANY ISO 27001 Information Security Management Systems

QMS Certification Services

MetaOPT

Contents

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MetaOPT

MetaOPT Model Inventory

Introduction

In this document we provide a brief overview of the models currently available as Public Models. This document is a summary – think quick view. Detailed guides for each model can be found on the website – https://meta-optimize.com.

Remember, however, this document is only focused on Public Models. Private models, specifically designed for individual customers, are available, so if you do not see exactly what you are looking for here, reach out and we can discuss how we can deliver a model perfect for your use case.

Access

To access any of the following models, you simply need to register. We only require Name and Email. There is no requirement for Credit Card details.

When you first register, we will gift 30 credits. A credit is a processing minute, enabling you to try models and confirm their suitability. This pricing methodology is designed to meet our goal of democratising access to complex mathematical models; the larger the data set the more complex the constraints, then the larger processing time. MetaOPT models can be enjoyed by organisations of all sizes and business types.

Inventory

The following models are currently available:

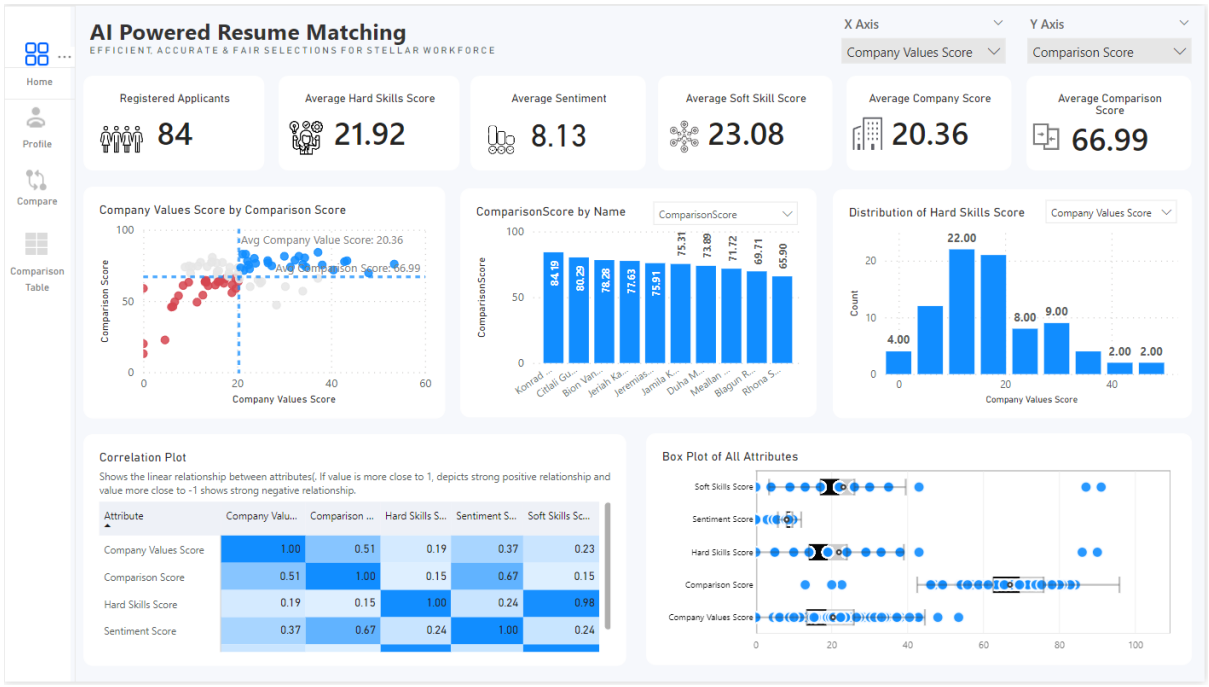
- Candidate Assessment
- Award Interpretation and Payroll Modelling
- Distribution Centre Task and Resource Scheduling
- Fixed Shift Scheduling
- Dynamic Shift Scheduling
- Transport Routing
- Train Routing for Coal Mines
- Hospital Admission Forecasting
- Surgical Procedure Forecasting
- Surgical Block Optimization
- NDIS Scheduling and Routing
- Sports Scheduling.

MetaOPT

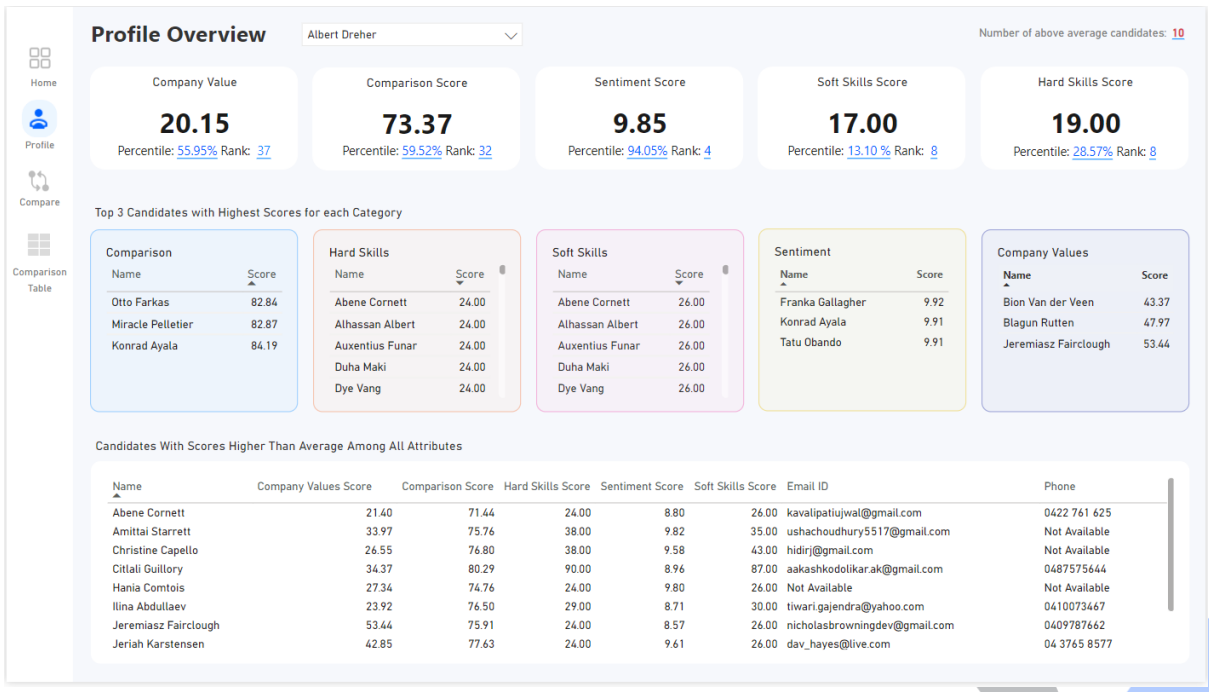
Candidate Assessment

The AI-based Resume Job Description Matching system utilizes innovative artificial intelligence technology to streamline the hiring process and identify the most suitable candidates for a specific job opening. This system leverages advanced natural language processing algorithms and machine learning techniques to analyze both job descriptions and resumes, enabling efficient and accurate matching.

Home Dashboard



Profile View



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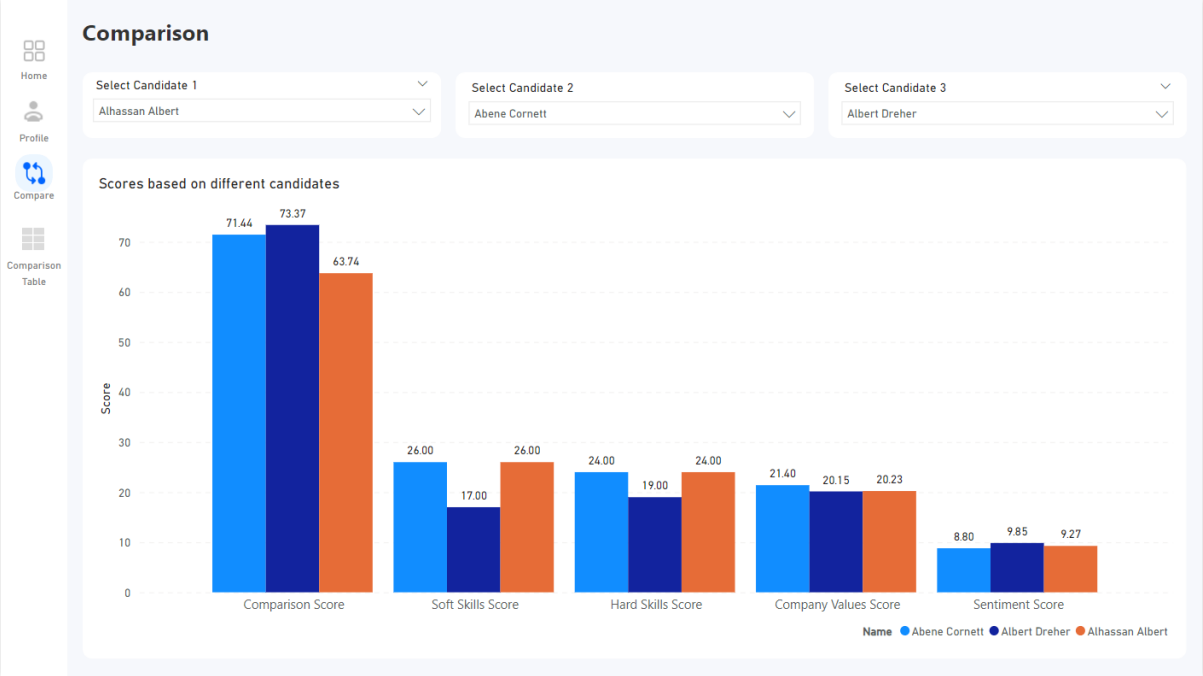
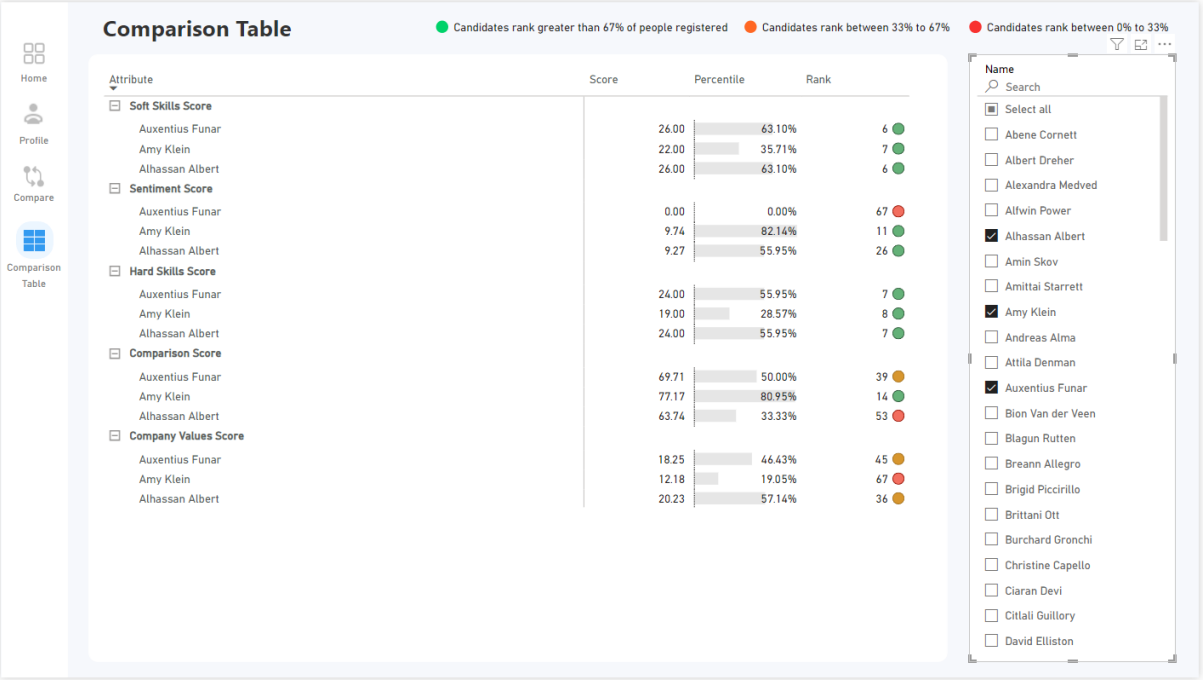
Comparison View



Comparison Table



Resources:

Video: Master Candidate Assessment with MetaOPT.

Download MetaOPT Assessment Guide

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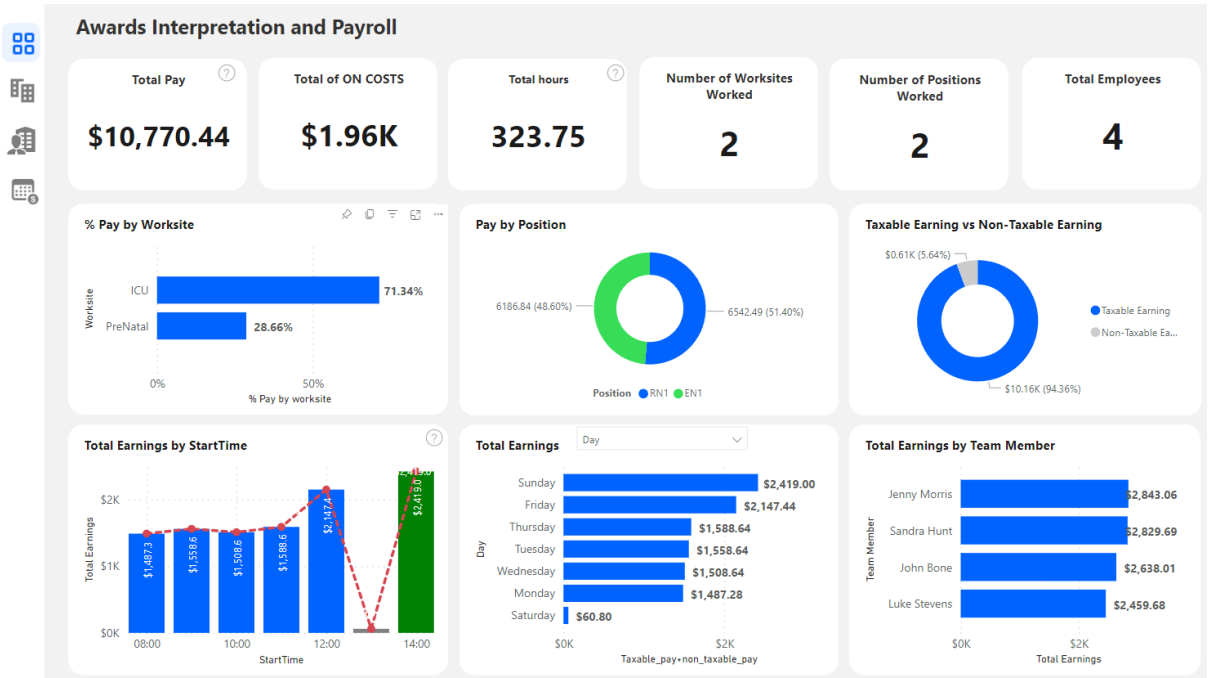
Award Interpretation and Payroll Modelling

A comprehensive model designed to streamline the process of interpreting timesheets against employment conditions to create daily payroll. The model consumes various timesheets and applies specified employment conditions to them. This model is versatile and can adapt to different industries with the right configuration.

As a user you can configure the award conditions to mirror your existing compliance requirements and is the perfect model to confirm your organization is protected from 'wage theft.' The ideal model to confirm existing systems are interpreting your employment conditions correctly, or as a forecasting tool to confirm the 'actual' cost of a projected roster, noting that the model not only calculates employee payments but on costs as well – Superannuation, Work Cover and Payroll Tax.

The model also provides costing by position and location, where each positions rates can be defined separately.

Overview



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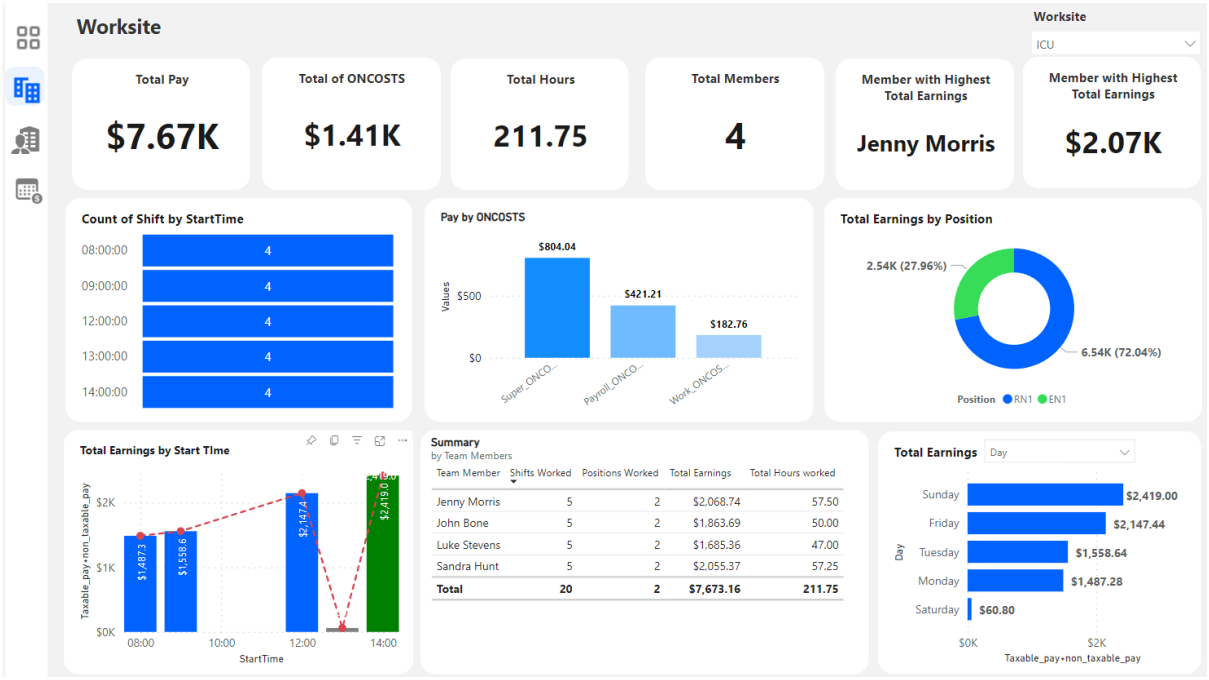
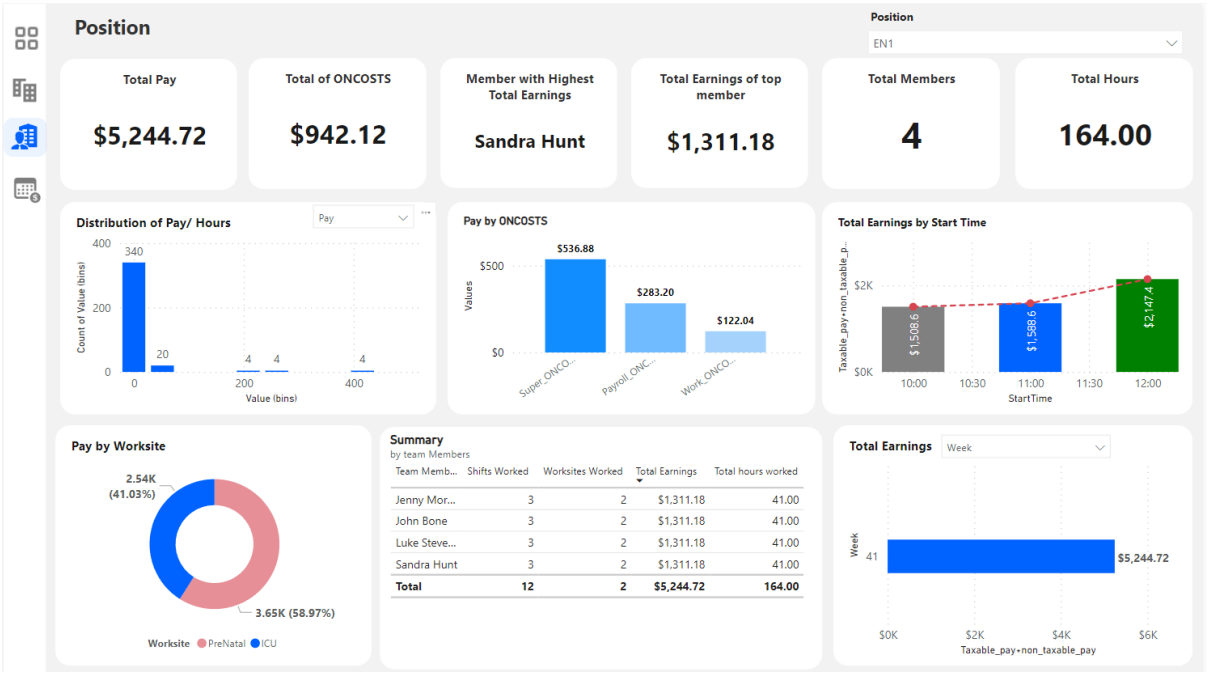
Costing by Worksite (Location)



Costing by Position



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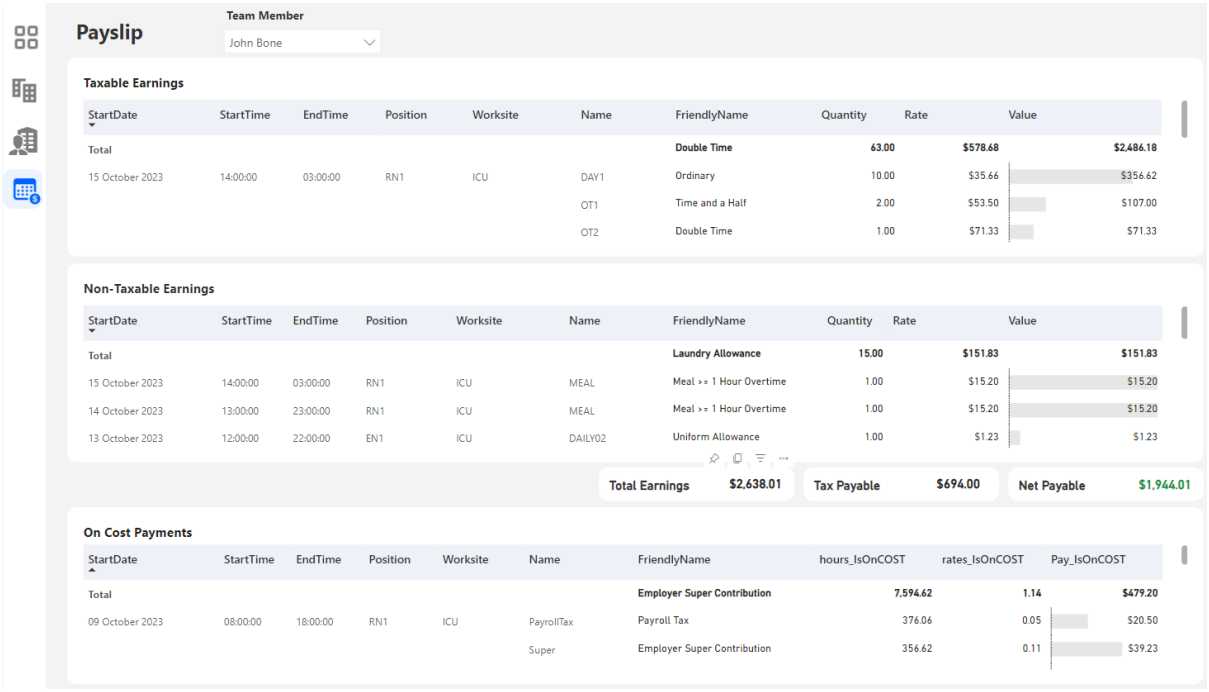
Individual Payslip



Resources:

Video: MetaOPT's Ultimate Guide to Timesheet Interpretation

Download MetaOPT Award Interpretation Guide

Short Online Curiobites Course – Transforming Timesheets into Interpreted Payroll

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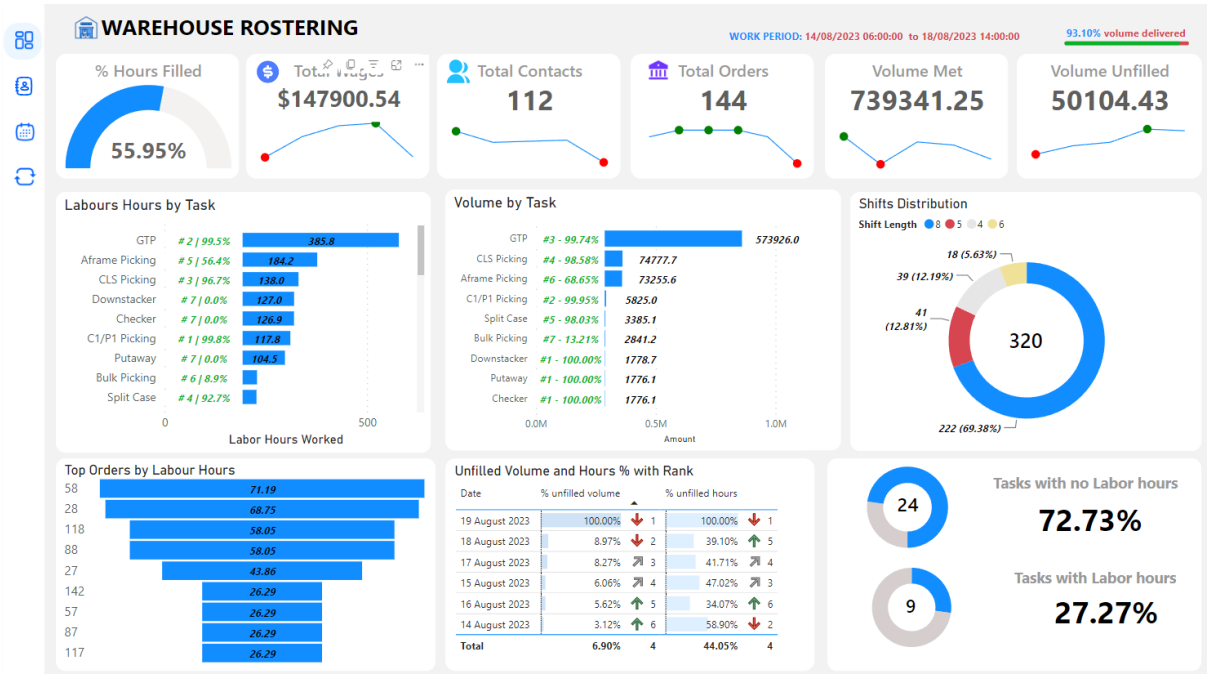
Distribution Centre Task and Resource Scheduling

The challenges facing distribution centres are complex. It is made more complex given the need to manage both inbound and outbound volume into the warehouse, both with high variability. Taking forecasted volume, the model will allocate the right workers with the right skills and availability to complete the various tasks. The model used defined standards to determine the labour hours required to ensure the products are despatched in time to meet the delivery windows of the customers.

The model takes numerous data elements and constraints including Forecasted absenteeism, off task and indirect management, staging capacity, function, and task as well as employment conditions for cost calculations.

This model is perfect for Distribution Centre Management to ensure product is received and processed in the most efficient manner, while ensuring all customer deliveries are despatched in the required times.

Overview – Warehouse Rostering



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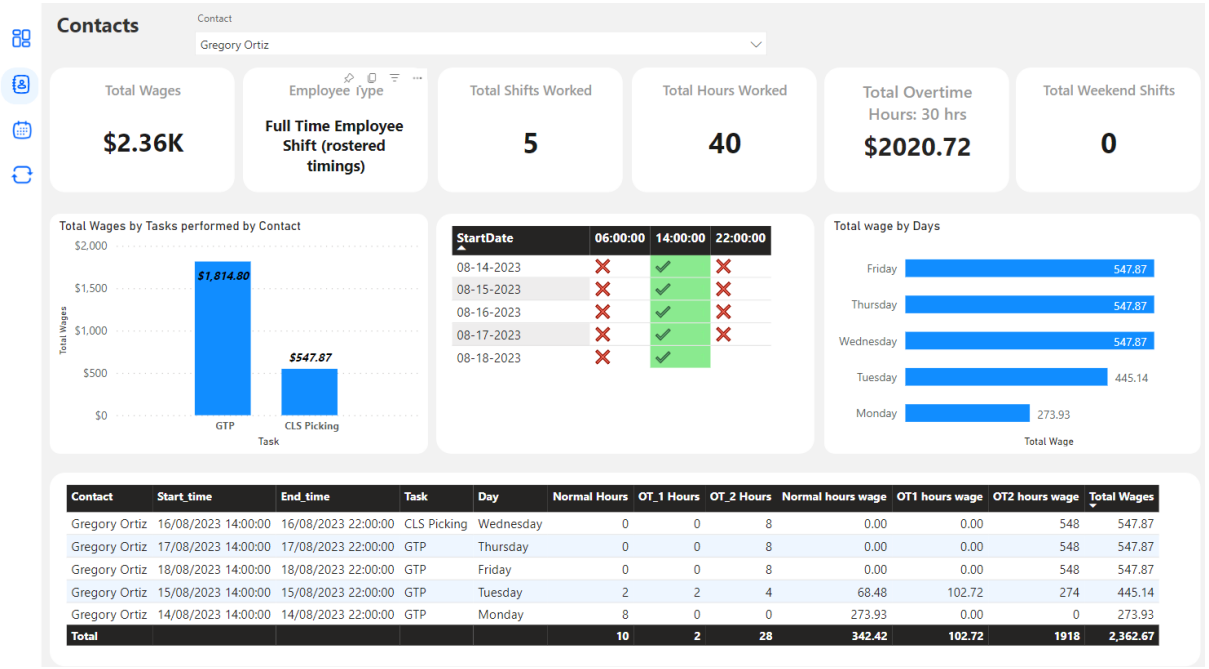
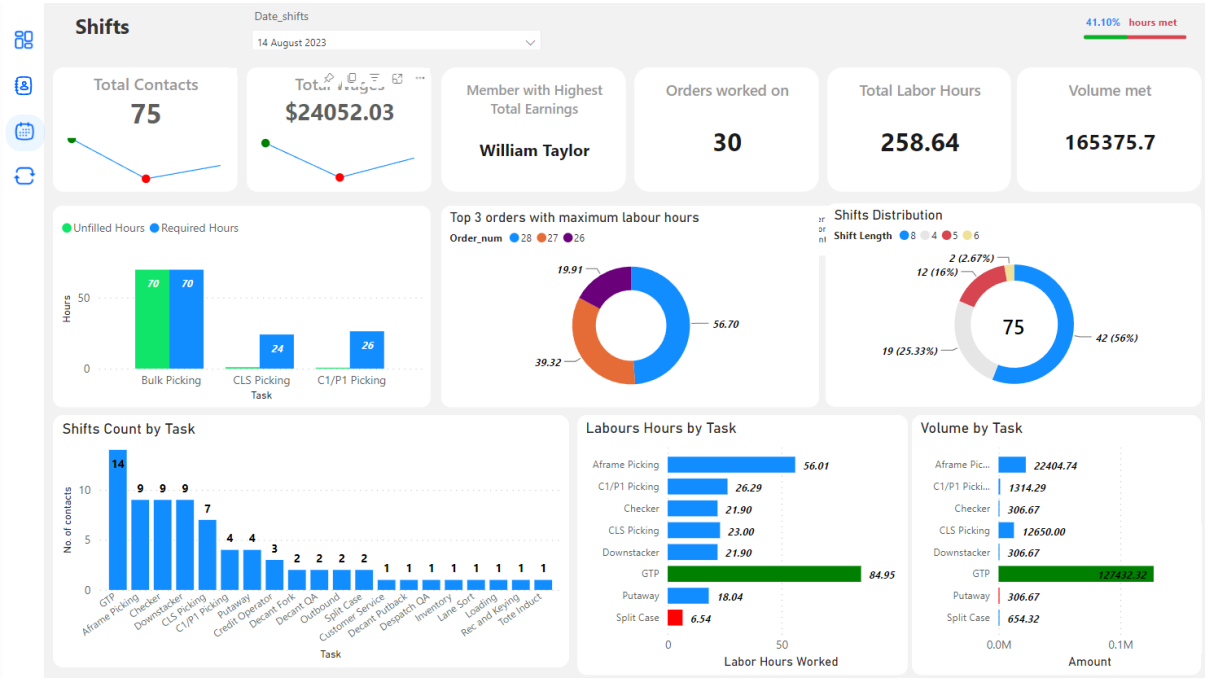
Contact View



Contact	Start_time	End_time	Task	Day	Normal Hours	OT_1 Hours	OT_2 Hours	Normal hours wage	OT1 hours wage	OT2 hours wage	Total Wages
Gregory Ortiz	16/08/2023 14:00:00	16/08/2023 22:00:00	CLS Picking	Wednesday	0	0	8	0.00	0.00	548	547.87
Gregory Ortiz	17/08/2023 14:00:00	17/08/2023 22:00:00	GTP	Thursday	0	0	8	0.00	0.00	548	547.87
Gregory Ortiz	18/08/2023 14:00:00	18/08/2023 22:00:00	GTP	Friday	0	0	8	0.00	0.00	548	547.87
Gregory Ortiz	15/08/2023 14:00:00	15/08/2023 22:00:00	GTP	Tuesday	2	2	4	68.48	102.72	274	445.14
Gregory Ortiz	14/08/2023 14:00:00	14/08/2023 22:00:00	GTP	Monday	8	0	0	273.93	0.00	0	273.93
Total					**10**	**2**	**28**	**342.42**	**102.72**	**1918**	**2,362.67**

Shift by Day



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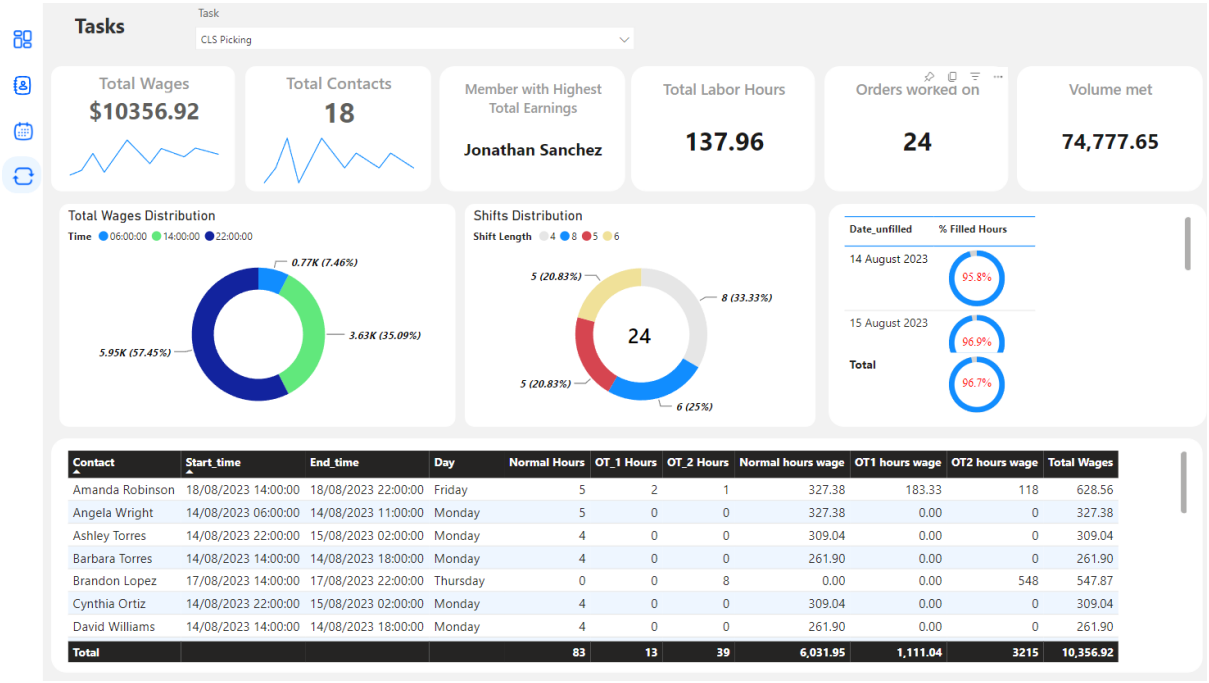
Costing by Task



Contact	Start_time	End_time	Day	Normal Hours	OT_1 Hours	OT_2 Hours	Normal hours wage	OT1 hours wage	OT2 hours wage	Total Wages
Amanda Robinson	18/08/2023 14:00:00	18/08/2023 22:00:00	Friday	5	2	1	327.38	183.33	118	628.56
Angela Wright	14/08/2023 06:00:00	14/08/2023 11:00:00	Monday	5	0	0	327.38	0.00	0	327.38
Ashley Torres	14/08/2023 22:00:00	15/08/2023 02:00:00	Monday	4	0	0	309.04	0.00	0	309.04
Barbara Torres	14/08/2023 14:00:00	14/08/2023 18:00:00	Monday	4	0	0	261.90	0.00	0	261.90
Brandon Lopez	17/08/2023 14:00:00	17/08/2023 22:00:00	Thursday	0	0	8	0.00	0.00	548	547.87
Cynthia Ortiz	14/08/2023 22:00:00	15/08/2023 02:00:00	Monday	4	0	0	309.04	0.00	0	309.04
David Williams	14/08/2023 14:00:00	14/08/2023 18:00:00	Monday	4	0	0	261.90	0.00	0	261.90
Total				**83**	**13**	**39**	**6,031.95**	**1,111.04**	**3215**	**10,356.92**

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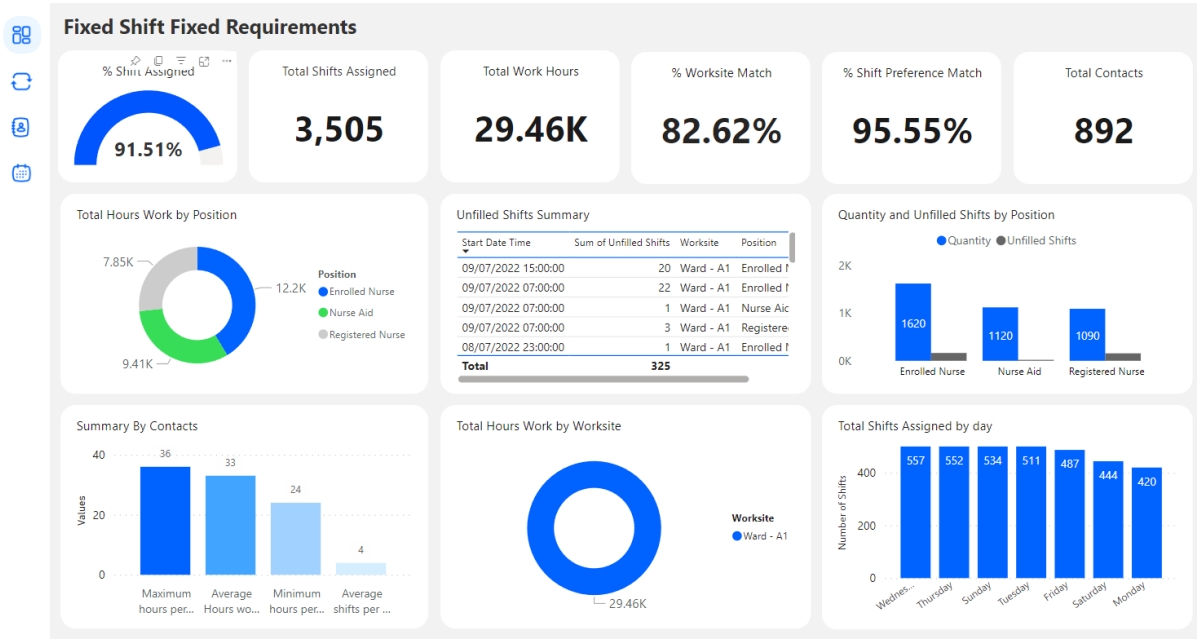
Fixed Shift Scheduling

This model is perfect for organizations that have a structured shift pattern, think Morning, Afternoon and Night Shifts. For each shift type the model takes the resource requirements for each position and worksite (location) and automatically schedules the available resource with the pre-requisite skills/qualifications to meet the requirements, all while considering individual availability, and preference as to which shift and which worksite the individual team members.

In addition, the user can specify the following constraints:

- Maximum Hours in a Week
- Minimum Break from Prior Schedule
- Maximum Consecutive Shifts in a Week.

Overview – Fixed Shift Requirements



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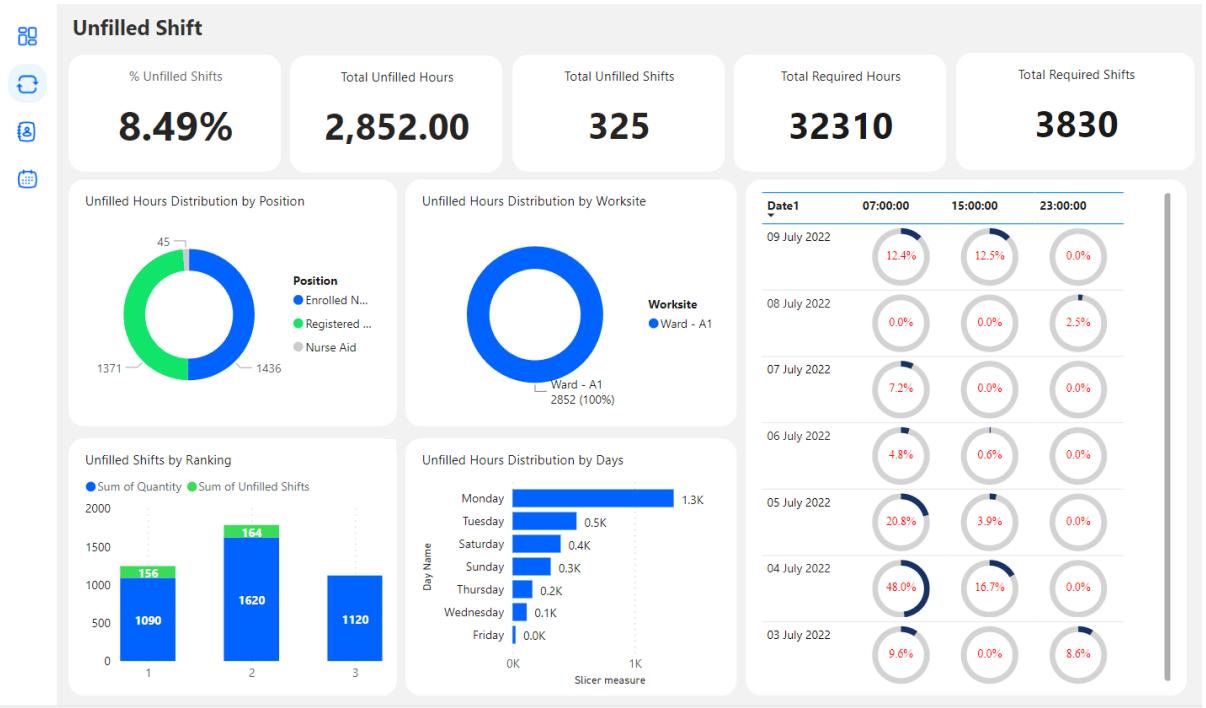
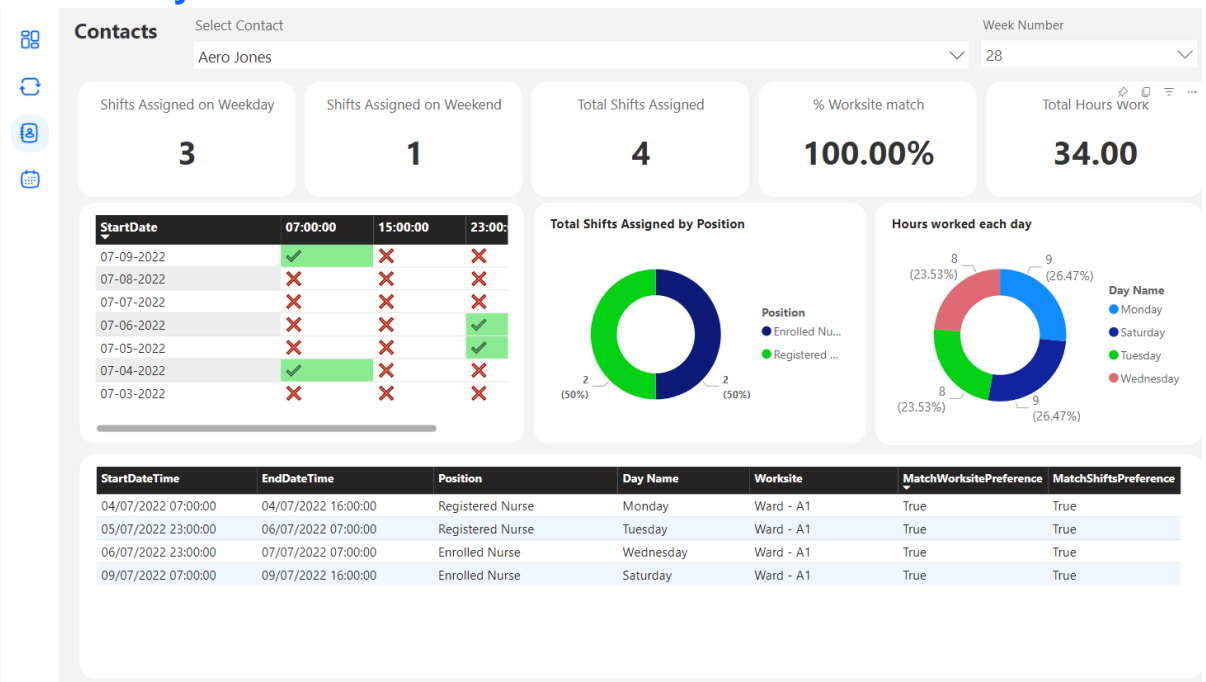
Unfilled Shifts



Schedule by Contact



StartDateTime	EndDateTime	Position	Day Name	Worksite	MatchWorksitePreference	MatchShiftsPreference
04/07/2022 07:00:00	04/07/2022 16:00:00	Registered Nurse	Monday	Ward - A1	True	True
05/07/2022 23:00:00	06/07/2022 07:00:00	Registered Nurse	Tuesday	Ward - A1	True	True
06/07/2022 23:00:00	07/07/2022 07:00:00	Enrolled Nurse	Wednesday	Ward - A1	True	True
09/07/2022 07:00:00	09/07/2022 16:00:00	Enrolled Nurse	Saturday	Ward - A1	True	True

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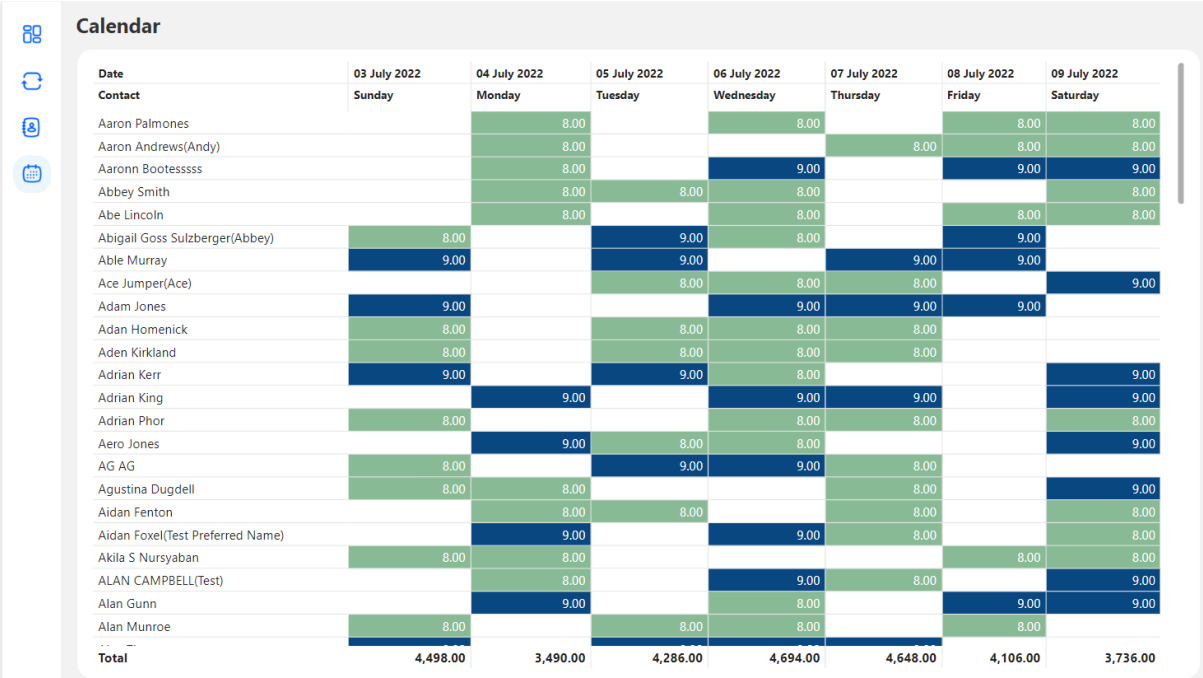
Calendar View



Date	03 July 2022	04 July 2022	05 July 2022	06 July 2022	07 July 2022	08 July 2022	09 July 2022
Contact	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aaron Palmones		8.00		8.00		8.00	8.00
Aaron Andrews(Andy)		8.00			8.00	8.00	8.00
Aaronn Bootesssss		8.00		9.00		9.00	9.00
Abbey Smith		8.00	8.00	8.00			8.00
Abe Lincoln		8.00		8.00		8.00	8.00
Abigail Goss Sulzberger(Abbey)	8.00		9.00	8.00		9.00	
Able Murray	9.00		9.00		9.00	9.00	
Ace Jumper(Ace)			8.00	8.00	8.00		9.00
Adam Jones	9.00			9.00	9.00	9.00	
Adan Homenick	8.00		8.00	8.00	8.00		
Aden Kirkland	8.00		8.00	8.00	8.00		
Adrian Kerr	9.00		9.00	8.00			9.00
Adrian King		9.00		9.00	9.00		9.00
Adrian Phor	8.00			8.00	8.00		8.00
Aero Jones		9.00	8.00	8.00			9.00
AG AG	8.00		9.00	9.00	8.00		
Agustina Dugdell	8.00	8.00			8.00		9.00
Aidan Fenton		8.00	8.00		8.00		8.00
Aidan Foxel(Test Preferred Name)		9.00		9.00	8.00		8.00
Akila S Nursyaban	8.00	8.00				8.00	8.00
ALAN CAMPBELL(Test)		8.00		9.00	8.00		9.00
Alan Gunn		9.00		8.00		9.00	9.00
Alan Munroe	8.00		8.00	8.00		8.00	
Total	4,498.00	3,490.00	4,286.00	4,694.00	4,648.00	4,106.00	3,736.00

Resources:

[Video – Revised Nurse Schedules in Minutes with MetaOPT]

[Video – MetaOPT Scenarios]

[Download MetaOPT Fixed Shift Fixed Requirement User Guide]

[Short Online Curiobites Course – Prescriptive Analysis]

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Dynamic Shift Scheduling

This model is an alternative to the Fixed Shift one above. In this model the shifts are not fixed, the staffing requirements (number of positions to fill) are based on a projected demand. Such a model would be perfect for a call center, where the projected calls will determine the number of operators staffing the phones, or events where demand can fluctuate, and the employment agreement provides for flexible start and finish times.

The schedule considers team member preferences, availability and qualifications as does the Fixed Shift Model, however, provides additional constraints to for greater flexibility when determining the optimal roster.

The following constraints can be specified when running the model:

- Available Start Times (one or more)
- Preferred Shift Lengths
- Rounding
- Breaks Length and Break Span
- Maximum Hours per Day
- Maximum Hours per Week
- Maximum Consecutive Shifts
- Minimum Hours per Shift
- Maximum Split Shift
- Minimum Break Between Shifts

With this model the algorithm will generate shift lengths that best match the constraints and the varying requirements during a span of time.

[Dashboard Currently in Development]

MetaOPT

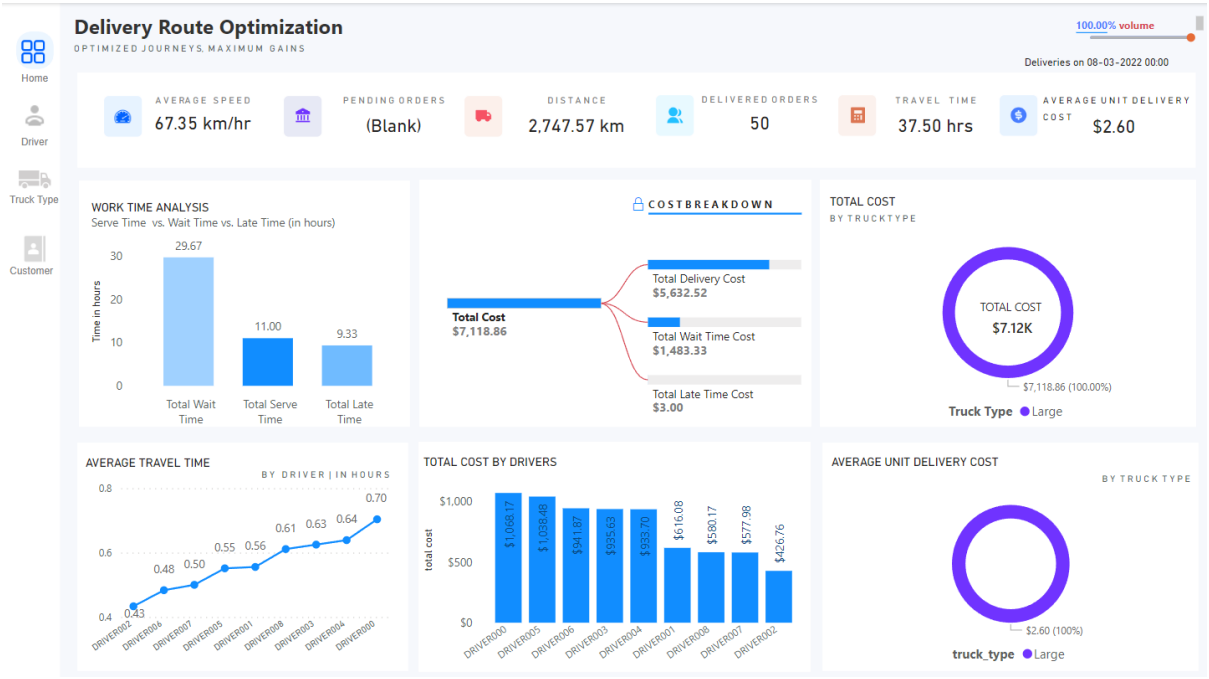
Transport Routing

The purpose of this model is to ensure all customer orders are delivered within their specified delivery windows in the most efficient and cost-effective manner. The model will determine the optimal routes for the drivers to reduce delivery time, wait time and late delivery costs.

The model consumes the following data: Wait Time Cost, Late Delivery Cost, Customer Profile (Zone, Delivery Window and GPS Co-ordinates), Customer Orders, Vehicle Types, Driver Qualifications, Driver Availability, and the Distance Matrix for all combinations of Customers.

The model will find the optimal balance between meeting customer requirements, while reducing overall cost.

Deliveries Overview



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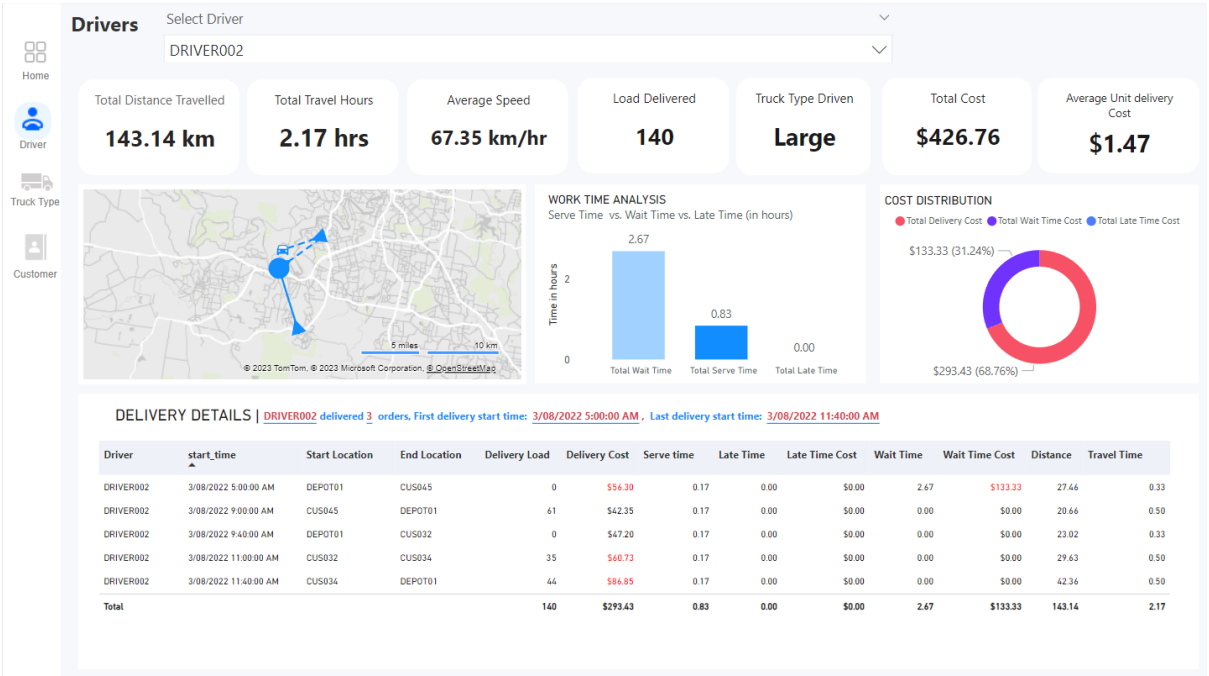
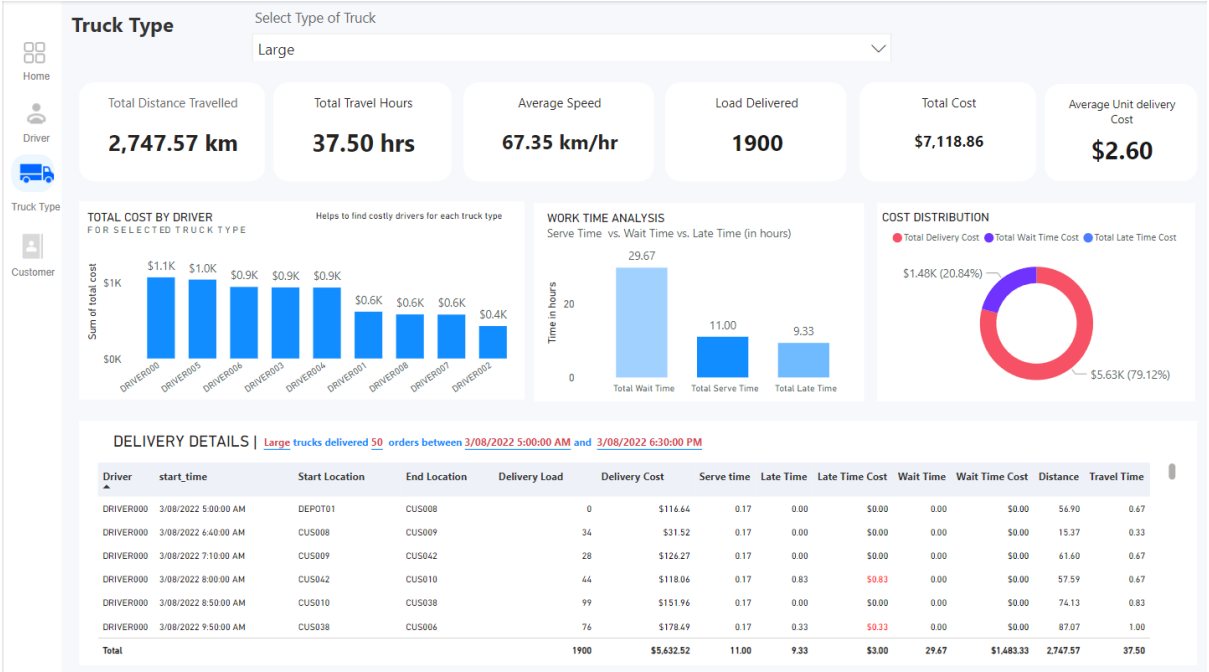
Driver Detail



Driver	start_time	Start Location	End Location	Delivery Load	Delivery Cost	Serve time	Late Time	Late Time Cost	Wait Time	Wait Time Cost	Distance	Travel Time
DRIVER002	3/08/2022 5:00:00 AM	DEPOT01	CUS045	0	$56.30	0.17	0.00	$0.00	2.67	$133.33	27.46	0.33
DRIVER002	3/08/2022 9:00:00 AM	CUS045	DEPOT01	61	$42.35	0.17	0.00	$0.00	0.00	$0.00	20.66	0.50
DRIVER002	3/08/2022 9:40:00 AM	DEPOT01	CUS032	0	$47.20	0.17	0.00	$0.00	0.00	$0.00	23.02	0.33
DRIVER002	3/08/2022 11:00:00 AM	CUS032	CUS034	35	$60.73	0.17	0.00	$0.00	0.00	$0.00	29.63	0.50
DRIVER002	3/08/2022 11:40:00 AM	CUS034	DEPOT01	44	$86.85	0.17	0.00	$0.00	0.00	$0.00	42.36	0.50
Total				140	$293.43	0.83	0.00	$0.00	2.67	$133.33	143.14	2.17

Vehicle/Truck Detail



Driver	start_time	Start Location	End Location	Delivery Load	Delivery Cost	Serve time	Late Time	Late Time Cost	Wait Time	Wait Time Cost	Distance	Travel Time
DRIVER000	3/08/2022 5:00:00 AM	DEPOT01	CUS008	0	$116.64	0.17	0.00	$0.00	0.00	$0.00	56.90	0.67
DRIVER000	3/08/2022 6:40:00 AM	CUS008	CUS009	34	$31.52	0.17	0.00	$0.00	0.00	$0.00	15.37	0.33
DRIVER000	3/08/2022 7:10:00 AM	CUS009	CUS042	28	$126.27	0.17	0.00	$0.00	0.00	$0.00	61.60	0.67
DRIVER000	3/08/2022 8:00:00 AM	CUS042	CUS010	44	$118.06	0.17	0.83	$0.83	0.00	$0.00	57.59	0.67
DRIVER000	3/08/2022 8:50:00 AM	CUS010	CUS038	99	$151.96	0.17	0.00	$0.00	0.00	$0.00	74.13	0.83
DRIVER000	3/08/2022 9:50:00 AM	CUS038	CUS006	76	$178.49	0.17	0.33	$0.33	0.00	$0.00	87.07	1.00
Total				1900	$5,632.52	11.00	9.33	$3.00	29.67	$1,483.33	2,747.57	37.50

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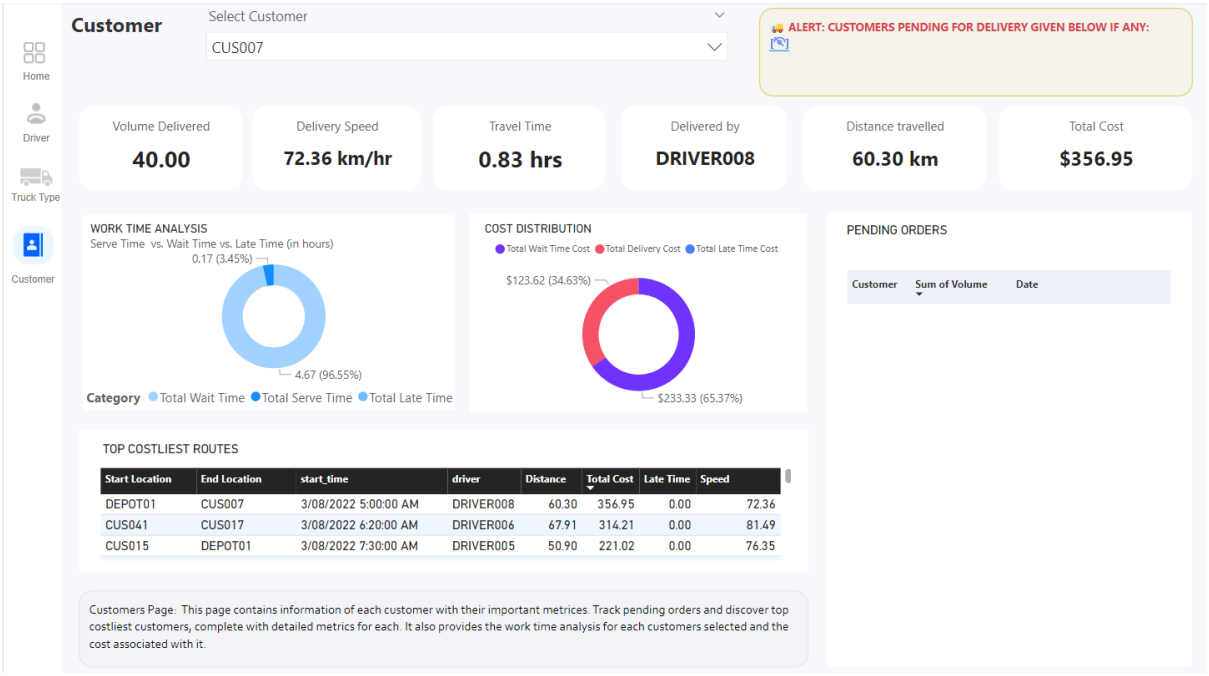
Customer



Resources:

Download Routing Requirements Guide

Short Online Curiobites Course – Prescriptive Analysis

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Train Routing for Coal Mines

The purpose of this model is to ensure the optimal delivery of mined Coal to various ports from a collection of Mines. The model consumes the following data to build the most efficient train schedule for ensuring all forecasted demand is delivered to the ports at the time required while maximizing train capacity.

- Systems – Individual Ports reside within a System.
- Port/Terminal including Unloading Attribute
- Mines – A Mine is associated with a system with Loading attributes.
- Trains – Speed and Capacity
- Parking Details
- Train Master – Qualifications required, System and Parking association.
- Train Stations – System association and stop detail.
- Distance – Matrix of distance between Parks, Ports, Mines and Stations.
- Drivers – Qualifications and System Association

Driver Roster – Deliveries can only be scheduled when a driver is rostered to work. (Note an extension of this model could determine the Roster to meet the Forecasted Demand, rather than fitting the demand requirements to a pre-determined roster.

The output of the model is the most optimum schedule of forecasted deliveries from Park to Mine to Port and back considering the available trains, their capacity, speed and parking location, the qualified drivers available.

[Dashboard Currently in Development]

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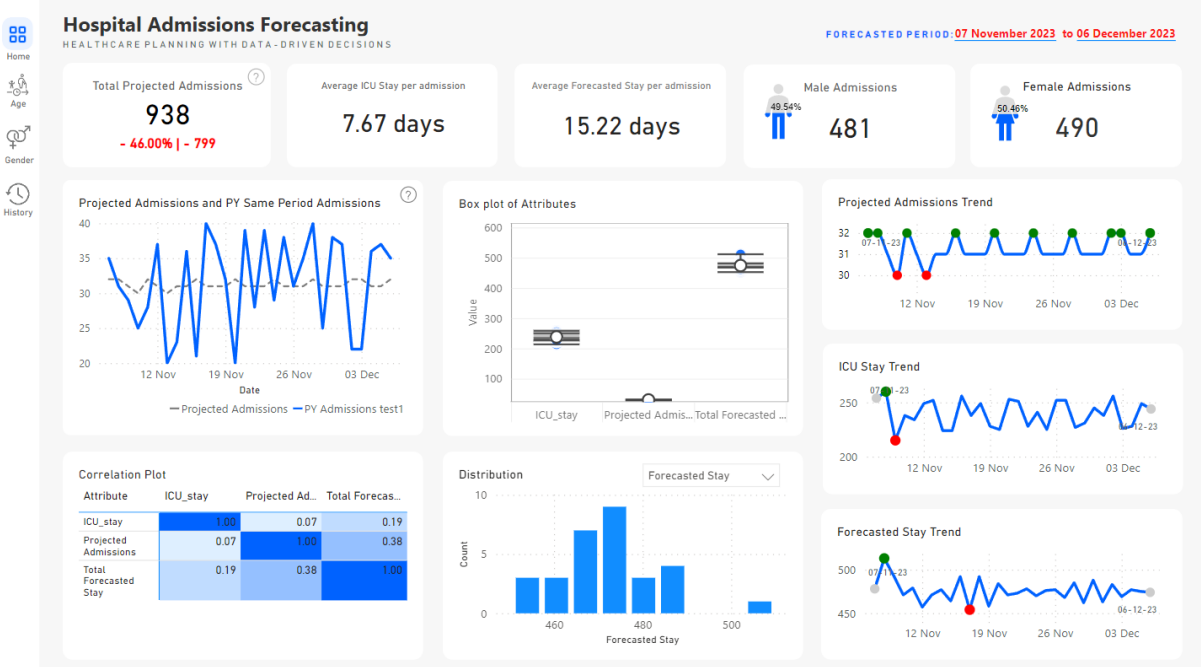
Hospital Admission Forecasting

Hospital admissions forecasting is a critical process that involves predicting the number of patients expected to be admitted to a hospital within a future period. This model systematically processes data from each admission over a historical period, capturing details such as the date of departure, duration of stay, and the number of days spent in the Intensive Care Department (ICU). Additionally, the model incorporates demographic information like age and gender. This model is the perfect partner to ensure your Nursing Ratios are optimized, i.e. not under of over staffed by accurately predicting requirements ahead of time.

Admissions Overview



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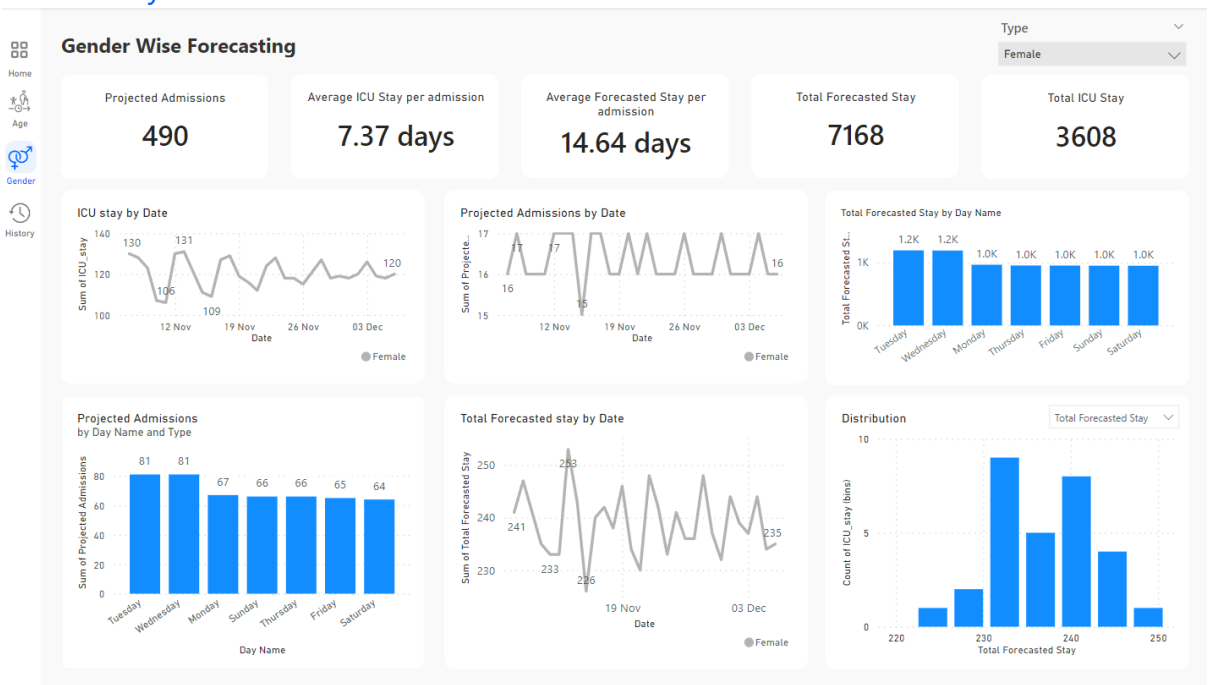
Forecast by Age

Forecast by Gender



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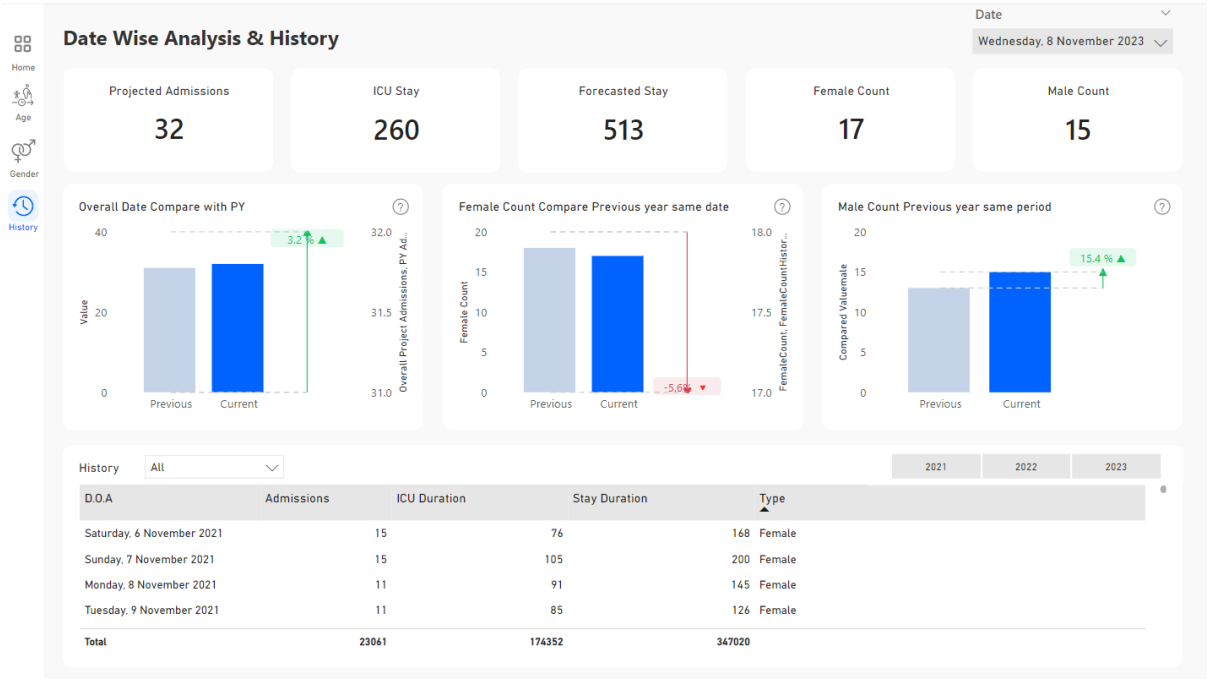
View by Date and Compare



Resources:

[Video: Mastering Hospital Admission Forecasting]

[Short Online Curiobites Course – An Introduction to Time Series Forecasting]

[Short Online Curiobites Course – The Application of ARIMA in Forecasting]

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Surgical Procedure Forecasting

Like the Hospital Admission Forecasting – this model is specific to surgical procedures. It is the perfect partner to the following Module – Surgical Block Optimisation. The purpose of this model is to project the number of surgeries for a given procedure that will need to be performed on a given date in the future. The model takes it a step further, by also forecasting the Surgical Time (in theatre), the hours required in ICU, PostOP and General Surgical wards, users can become really initiative taking in resource management. Staffing ratios can be calculated, considering the forecasted bed capacity.

[Dashboard Currently in Development]

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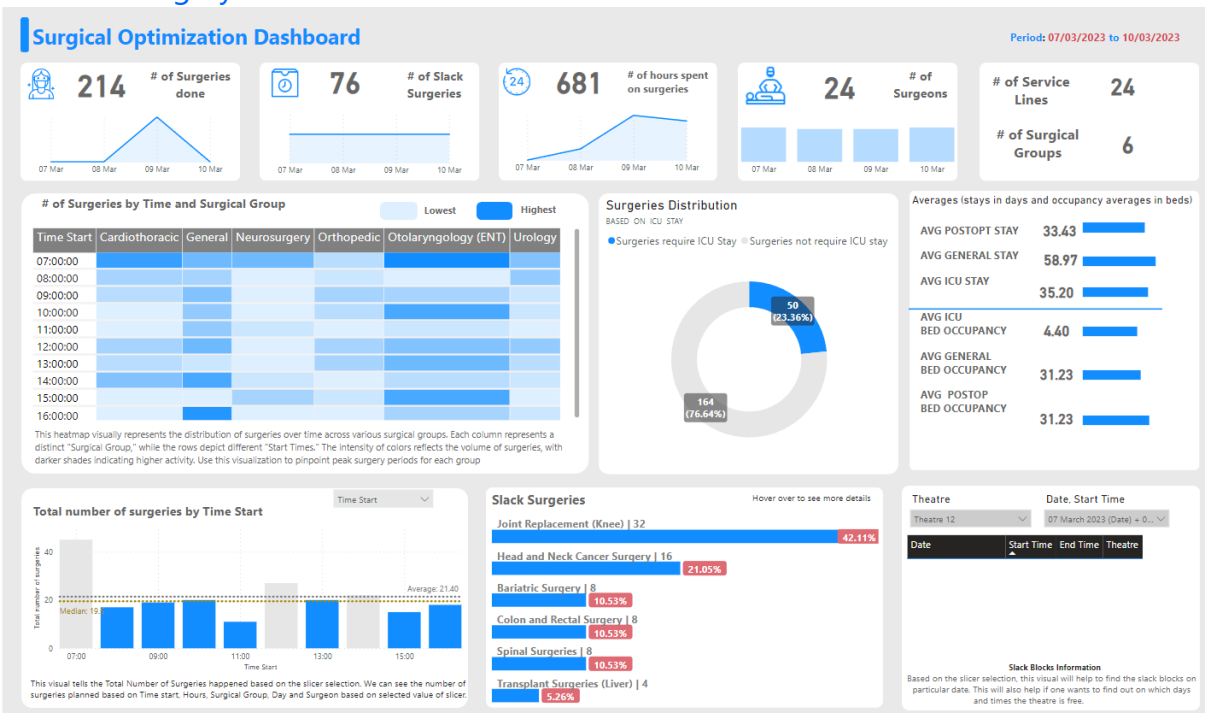
Surgical Block Optimization

Surgical block optimization refers to the strategic allocation and scheduling of operating room time and resources. A "block" is a specific period reserved in the OR schedule for surgeries, usually designated for surgeons or surgical groups. Optimizing these blocks involves efficiently planning and utilizing available OR time, staff, equipment, and post-operative care resources to meet the demand for surgical procedures.

The complexity of the model not only considers the surgical forecast, available theatres and surgeons' availability and skill, it ensures the bed capacity requirements post-surgery can meet the through put. The model will ensure there is always a bed available for the patient post-surgery, while accounting the specific attributes of the various procedures.

ORs are among the most resource-intensive areas in a hospital. Effective block optimization ensures the best use of these resources, minimizing idle times and maximizing surgical output.

Forecast Surgery Overview



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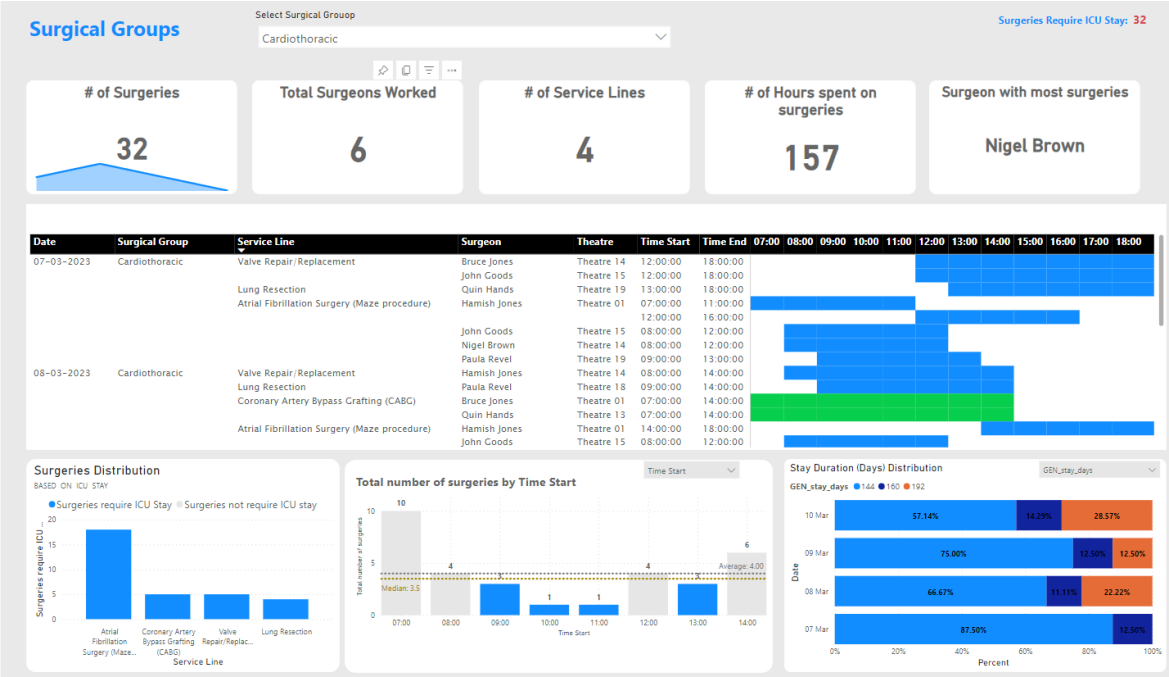
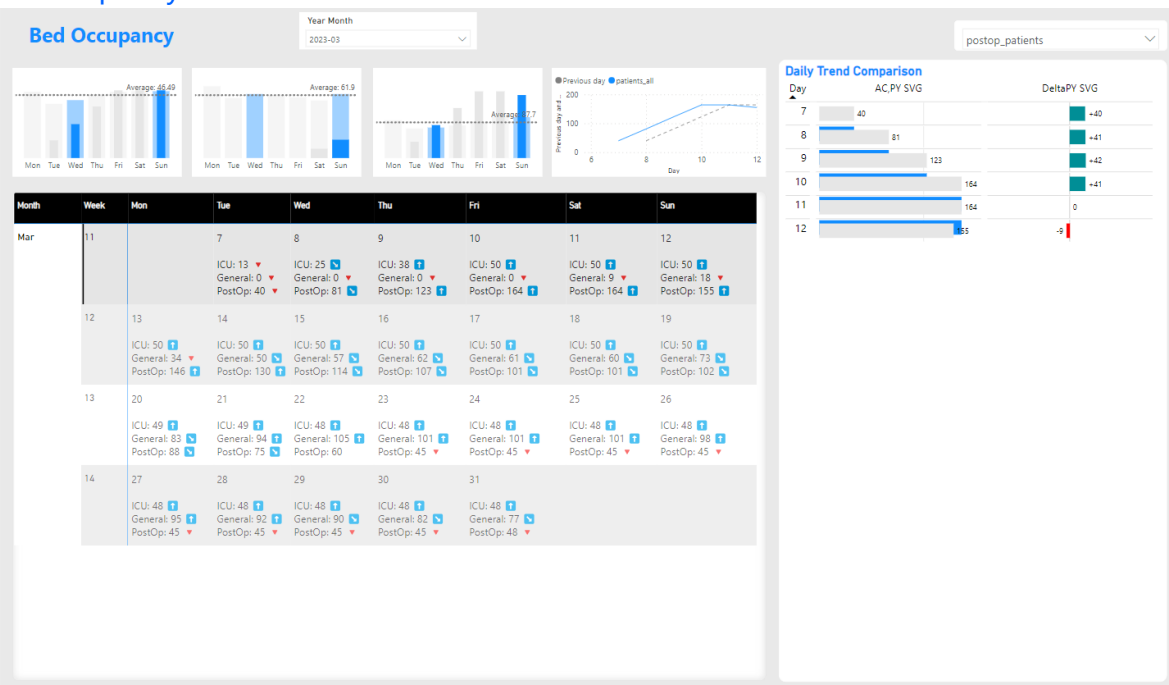
By Surgical Group



Bed Occupancy



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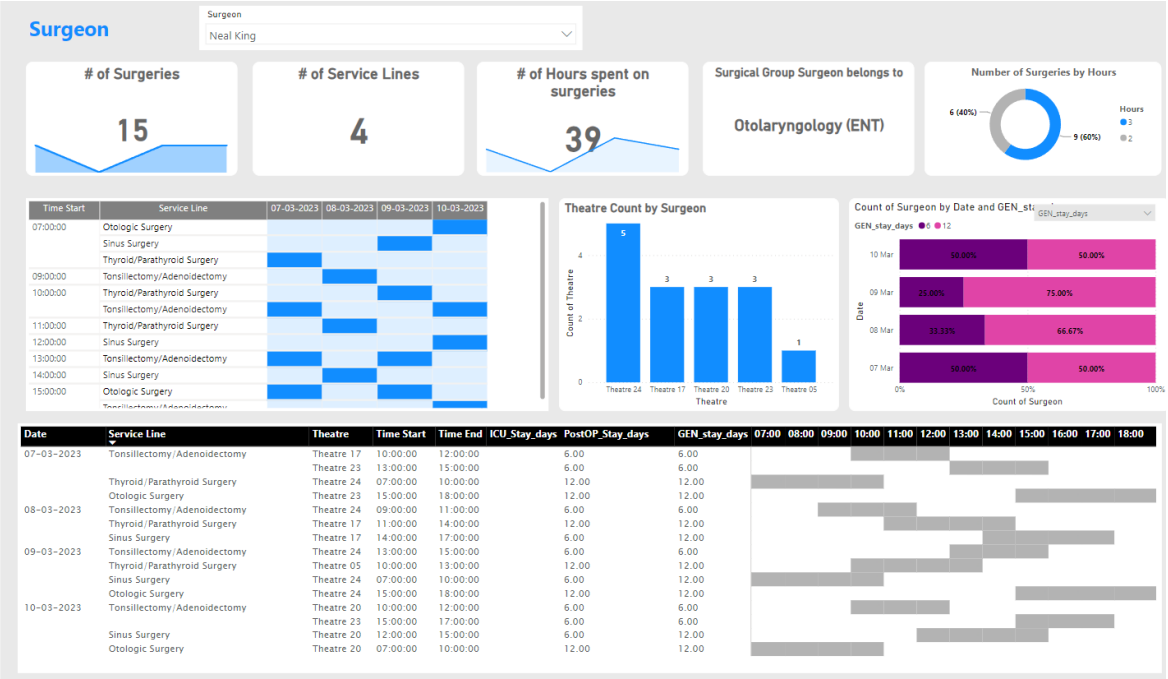
By Surgeon



Resources:

[Short Online Curiobites Course – Surgical Block Optimization]

[Download MetaOPT Surgical Block Optimization Guide]

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NDIS Scheduling and Routing

The challenges of Home Care are great. Participants, those requiring the care, may have multiple needs where these same needs require carers with different skills.

Like the Fixed Shift and Dynamic Shift models this model will assign the carers with the right skills to deliver the services in home required by consuming carer skills/qualifications, preferences, and availability.

The model however deals with the added complexity of routing the carers, ensuring that the carers a visiting the carers in the most efficient manner, i.e., a model that not only minimizes travel time but also ensures the windows when the carer is expecting care are respected.

[Dashboard Currently Under Development]

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Visit https://meta-optimize.com and register to access the Candidate Assessment Model. On registration you will be provided with thirty introductory credits, enabling you to see first-hand, on us, how you will not only streamline your recruitment process but improve the outcomes for sustainable improvement.

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