

People and Technology
that work for *You...*

ASP .Net MVC/Azure Project Case Studies

Case Study

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1. Azure data warehouse overview

UK based financial services company required to have an Azure data warehouse to maintain data on cloud which can be used to generate MIS reports. There are 3 existing application from which data needs to be extracted to generate reports. In some cases, data needs to be extracted from CSV files and in some case, data needs to be extracted from different database. Data lake storage & blob storage are used to store CSV files and Azure Data Factory services are used for data transformation.

Below are the main activities carried out to create and maintain data warehouse.

- Create a database with different dimension, lookup, relation and fact tables to store data coming from multiple sources.
- Extract data from multiple source applications through CSV files extracts or by connecting to the applications database.
- Validate, cleanse extracted data from multiple source and transform it to single location on cloud so that reports can be generated from it.
- Create Azure Data Factory Pipelines to extract data from source and store it to Azure SQL database. Write stored procedures to transform data in the format useful for final reports generation. ADF activities used for data extraction & transformation are Copy Data, Stored Procedure, For Each.
- Maintain metadata information (using "Get Metadata" ADF activity).
- Execute Azure pipelines periodically (using ADF pipeline trigger) to maintain data consistency.

Below section provides more details about some important ADF pipelines used.

- **Account Data Import**

Account data defines all the distinct accounts of a company & their associated attributes. Accounts are typically trusts and can include Government Body.

Source data store to import account data is another Azure SQL Server database. ADF copy activity is used to import data from source data store and stores it on destination Azure SQL server database. Imported data is cleanse and transform using stored procedure activity. Transformation process populates account dimension table along with different dimension tables related to Account entity

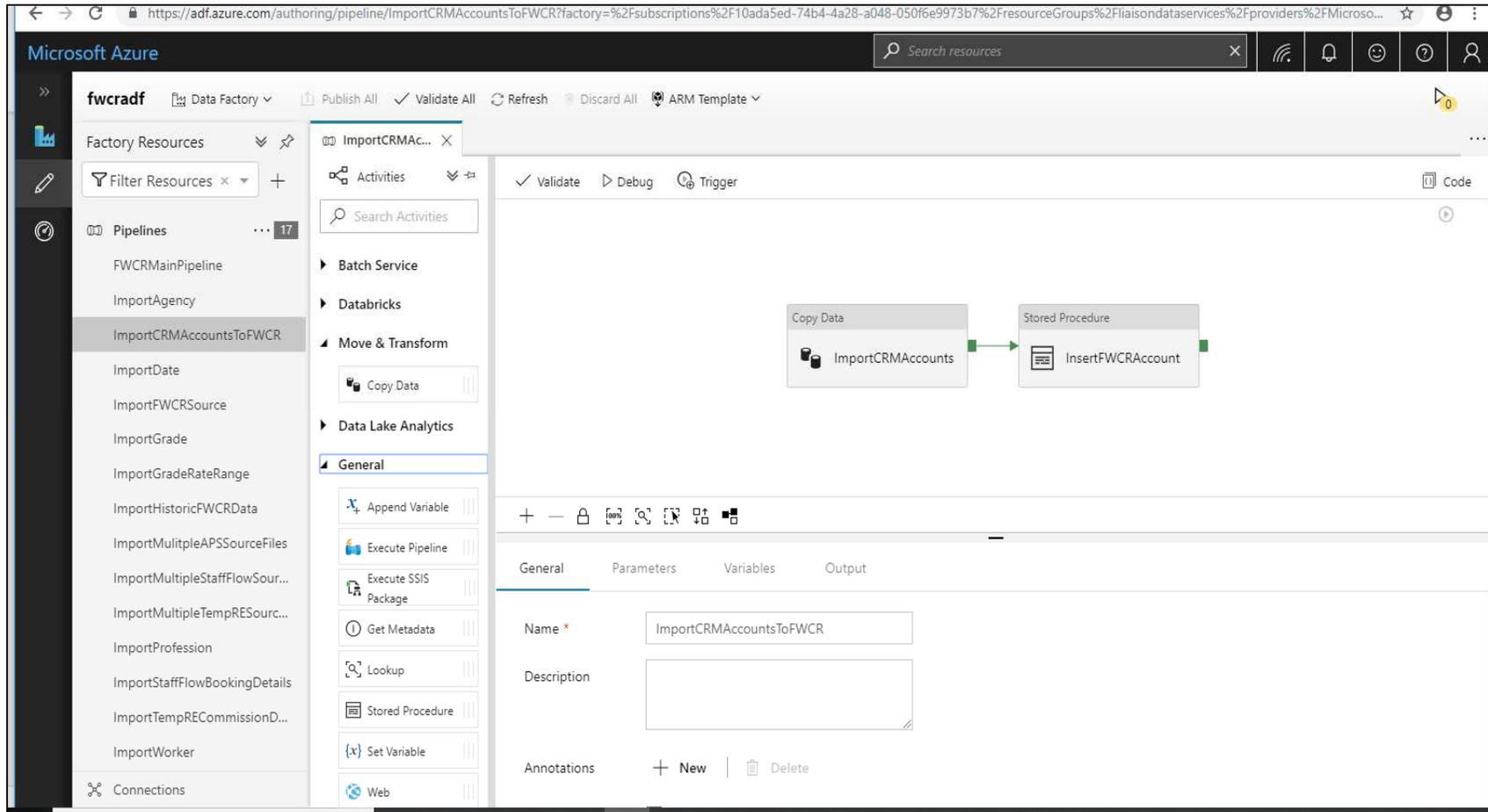


Figure 1: Account Data Import

- ADF pipeline used to import source application data from multiple CSV files**
 Data needs to be extracted from 3 different existing applications to generate final MIS report. Application provides data in multiple CSV files which are stored on Azure Data Lake. In this scenario metadata for each file needs to be maintained. To achieve this, different ADF activities are used in pipeline.
 1. Get Metadata Activity – Provides metadata of file being imported
 2. For Each Activity – Use to iterate through multiple files.
 3. Copy Data Activity – Use to copy data from individual file to destination table
 4. Stored Procedure Activity – Used to execute stored procedure to update metadata information of file.

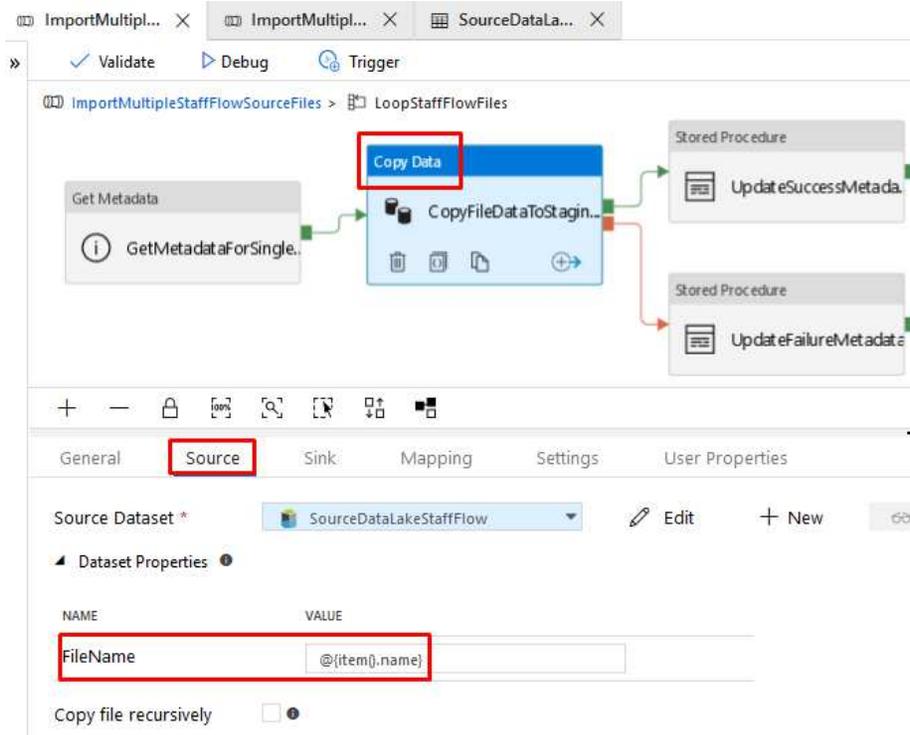


Figure 2 Multiple linked activities

2. Hospital Equipment Maintenance System Mobile APP

Hospital equipment maintenance system app can be used to manage work requests from anywhere in the hospital, regardless of the platform: iOS (Apple), Android, and Windows.

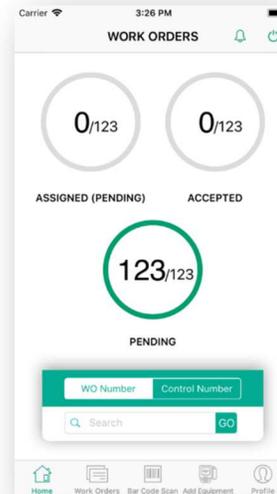
This application allows Technician users log into the system and perform below actions for single or multiple hospitals assigned to them:

- Work on to performs PM (Preventive Maintenance) sweep of the department,
- Work on the jobs assigned to them,
- Work on the CM (Corrective Maintenance) work orders assigned to them.

Following are some important modules of APP

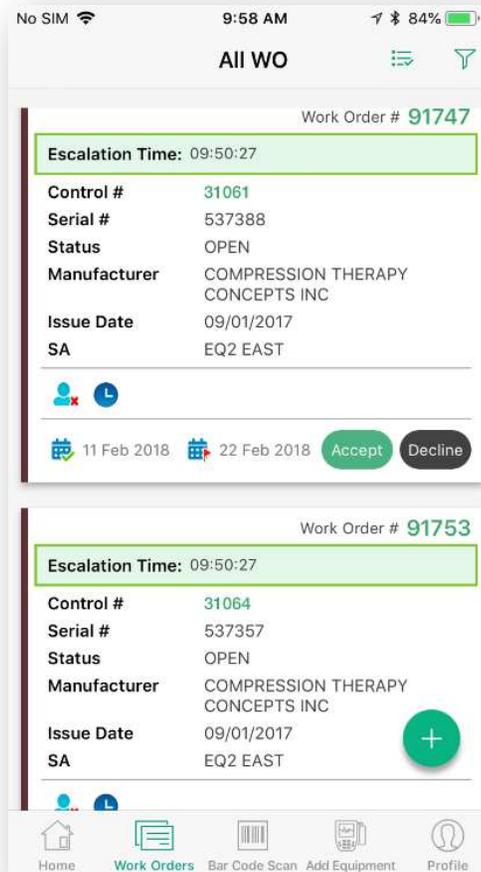
- **Dashboard**

When technician logs in into the application, dashboard screen shows some key information to the user like count of work orders accepted by technician, count of work orders pending etc.



- Work Order**

Work Order Listing Screen shows all the work orders assigned to the technician in such a way that the user can quickly see the new work orders assigned to him and work orders approaching based on priority.



Technician can create new work order using Create work order screen.

No SIM 10:55 AM 62%

Create New Order

WO	Control #	EQ Type
2509	00360002914...	NOT FOUND

Requester: Department:

Location: Priority:

WO Type: SCHEDULED Est. Hours:

Issue Date:

Assg Eng: ARESS Specialty:

Failure/Subcode: Status:

Status Date:

Due Date:

Home Work Orders Bar Code Scan Add Equipment Profile

No SIM 10:56 AM 61%

Create New Order

Due Date:

Procedure: NONE

Request:

Action:

Initials: ARESS

Hours: Premium:

Start Date/Time:

Labor Lump Sum: WO Code:

Home Work Orders Bar Code Scan Add Equipment Profile

No SIM 10:50 AM 68%

Create New Order

Labor Lump Sum: \$ WO Code:

Component: PO #:

Part #: Quantity:

Part Lump Sum: \$ Storage Location:

Tester Control: Default Downtime:

Billing Code: DPC Code:

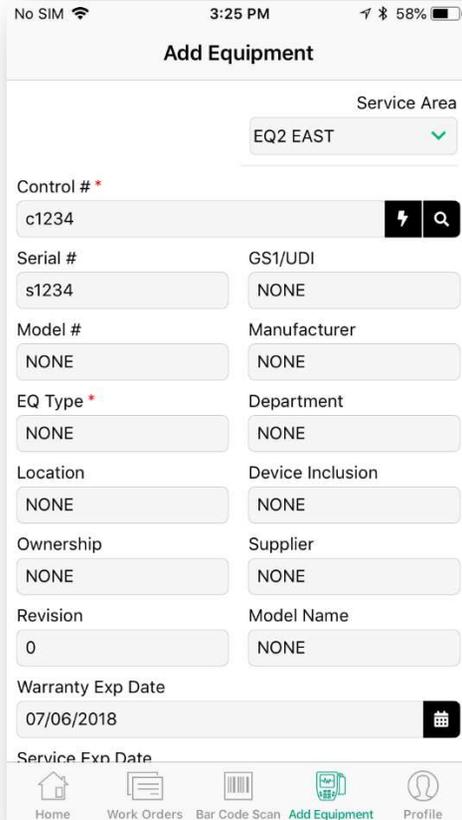
Select Attachment Billing Avg

Supported file format : .jpeg, .png, .txt, .pdf, .xlsx

Home Work Orders Bar Code Scan Add Equipment Profile

- Equipment**

Equipment can be added from this screen. Equipment are basically medical devices for which maintenance/ failure work orders are created. This modules has a special feature for Bar code scanning that makes it easier to add equipment.



Add Equipment

Service Area: EQ2 EAST

Control #*: c1234

Serial #: s1234 | GS1/UDI: NONE

Model #: NONE | Manufacturer: NONE

EQ Type*: NONE | Department: NONE

Location: NONE | Device Inclusion: NONE

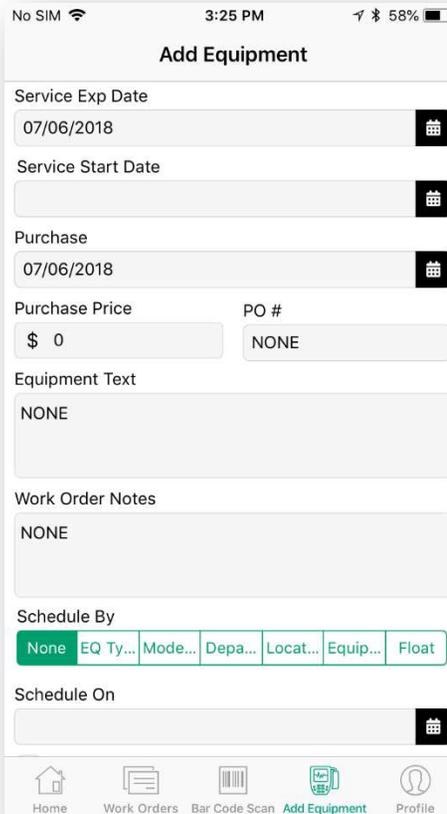
Ownership: NONE | Supplier: NONE

Revision: 0 | Model Name: NONE

Warranty Exp Date: 07/06/2018

Service Exn Date: [Calendar Icon]

Bottom Bar: Home, Work Orders, Bar Code Scan, Add Equipment, Profile



Add Equipment

Service Exp Date: 07/06/2018 [Calendar Icon]

Service Start Date: [Calendar Icon]

Purchase: 07/06/2018 [Calendar Icon]

Purchase Price: \$ 0 | PO #: NONE

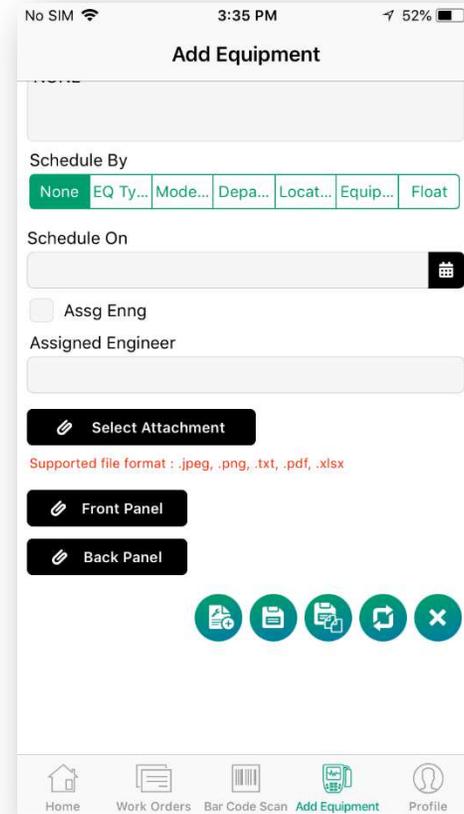
Equipment Text: NONE

Work Order Notes: NONE

Schedule By: None EQ Ty... Mode... Depa... Locat... Equip... Float

Schedule On: [Calendar Icon]

Bottom Bar: Home, Work Orders, Bar Code Scan, Add Equipment, Profile



Add Equipment

Schedule By: None EQ Ty... Mode... Depa... Locat... Equip... Float

Schedule On: [Calendar Icon]

Assg Enng

Assigned Engineer: [Text Field]

Select Attachment

Supported file format : .jpeg, .png, .txt, .pdf, .xlsx

Front Panel

Back Panel

Bottom Bar: Home, Work Orders, Bar Code Scan, Add Equipment, Profile

3. Vacancy / Employment Management Tool

Employment tool is an application which helps trusts and agencies to recruit candidates against available vacancies. Trusts or agencies can create vacancies and can publish vacancy to matching candidates or any candidate can register himself and view available vacancies and can apply to them. Suitable candidate can get offer from trust or agencies through the application.

Candidate can manage his availability for pericocular shift. Application also manages timesheet of candidate for the shifts he worked on. Depending upon the payrate of shift and candidate's timesheet, trust or agency can manage payroll of that candidate through system.

Building blocks of this application as are detailed below:

- **Vacancy**

When a trust identifies that it has vacancies for specific job profile then it can create a vacancy. Trust can publish these vacancies directly to candidates or to outsourcing agencies.

Trust User Two

- DASHBOARD
- VACANCIES
- CANDIDATES

Vacancies

+ New Vacancy

16 Unfilled

Filter By

Status

Date From

Date To

Search by text

Advanced Filter

Ref	Title	Location	Cost Centre	Sector	Profile	Start	End	Shifts	Status	Fill
47384	Reporter	Histopathology TempRe Community H...	Histopathology 35710D3A	Medical & Dental	Medical & Dental GP Cardiology	24 Jan 2019	24 Jan 2019	1	Unfilled	0%
8C2F0	expired but confir...	Histopathology TempRe Community H...	Pathology 49185FF7	Medical & Dental	Medical & Dental GP Cardiology	17 Jan 2019	17 Jan 2019	1	Unfilled	0%
C46A1	test@test	General Paediatrics TempRe Community H...	General Paediatrics AE2B79FE	Medical & Dental	Medical & Dental GP Cardiology	17 Jan 2019	30 Jan 2019	4	Unfilled	0%
646F4	Expired shift	Histopathology TempRe Community H...	Pathology 49185FF7	Medical & Dental	Medical & Dental GP Cardiology	17 Jan 2019	17 Jan 2019	1	Unfilled	0%
204B6	Vacancy Eric 1	Haematology TempRe Community H...	Haematology 1F5541D7	Medical & Dental	Medical & Dental GP Cardiology	17 Jan 2019	27 Jan 2019	5	Unfilled	0%

Trust User Two

- DASHBOARD
- VACANCIES
- CANDIDATES

Vacancy Title

Reporter

Shift Candidates

REF NUMBER

47384

Shift Ref	Dates	Candidates Required
47384S1	24 Jan 2019 14:30 - 22:30	4

14 Candidates

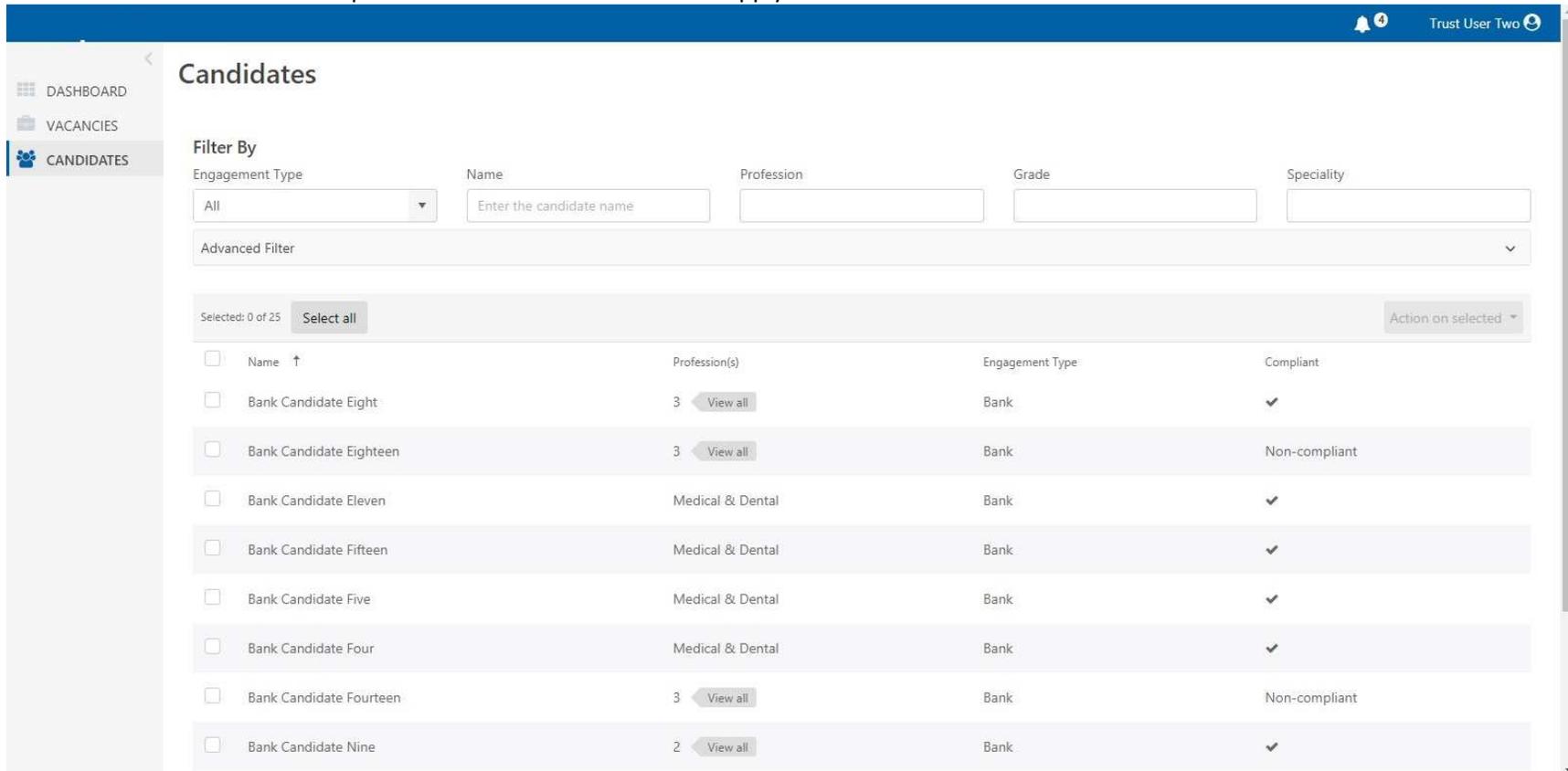
<input type="checkbox"/>	Candidate Name	Pay Rate	Source	Progress Status
<input type="checkbox"/>	Bank Candidate Twenty One	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed
<input type="checkbox"/>	Bank Candidate Nineteen	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed
<input type="checkbox"/>	Bank Candidate Seventeen	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed
<input type="checkbox"/>	Bank Candidate Three	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed
<input type="checkbox"/>	Bank Candidate Fifteen	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed
<input type="checkbox"/>	Bank Candidate Eleven	£64.43 View more	Bank	Invited Applied Reviewing Approved Offered Confirmed

1 - 1 of 1 shifts

© 2018 Liaison | Build: 896 | Release: 321

- **Candidate**

Candidate can register himself using this application or trust/agency can add candidate profile to the system. Once registered, candidate can view published vacancies as well as can apply for it.



The screenshot shows a web application interface for managing candidates. The top navigation bar includes a notification bell with '4' and the user name 'Trust User Two'. A left sidebar contains menu items: DASHBOARD, VACANCIES, and CANDIDATES (which is highlighted). The main content area is titled 'Candidates' and features a 'Filter By' section with dropdowns for 'Engagement Type' (set to 'All') and input fields for 'Name' (with placeholder 'Enter the candidate name'), 'Profession', 'Grade', and 'Speciality'. Below the filters is an 'Advanced Filter' dropdown. A table below shows a list of candidates with columns for Name, Profession(s), Engagement Type, and Compliant status. The table includes a 'Selected: 0 of 25' indicator, a 'Select all' button, and an 'Action on selected' dropdown. The table data is as follows:

Name	Profession(s)	Engagement Type	Compliant
Bank Candidate Eight	3 View all	Bank	✓
Bank Candidate Eighteen	3 View all	Bank	Non-compliant
Bank Candidate Eleven	Medical & Dental	Bank	✓
Bank Candidate Fifteen	Medical & Dental	Bank	✓
Bank Candidate Five	Medical & Dental	Bank	✓
Bank Candidate Four	Medical & Dental	Bank	✓
Bank Candidate Fourteen	3 View all	Bank	Non-compliant
Bank Candidate Nine	2 View all	Bank	✓

Trust User Two

- DASHBOARD
- VACANCIES
- CANDIDATES
- DETAILS
- SCHEDULE

Bank Middle Name Candidate Eight

Association Accepted

Profile
Professional
Documents
Payment

General Edit

First Name Bank	Middle Name Middle Name	Last Name Candidate Eight
Known As BEight	Gender Male	Date of Birth 01 Jan 1991

Contact Edit

Email tempre.bank.candidate.08@Liaisonsf.com (Primary) BankCandidate Eight@gmail.com	Phone 07700 900896 (Mobile) 01332 454556 (Home)
--	---

Addresses Edit

Home 192 Terminus Mills, Clonskeagh Dublin 6	Work 94 Prospect Place, Millenium Way Derby DE24 8HG
--	--

REF NUMBER
f62097d5-21fc-4e69-adda-f6c95ad48e1b

Compliance (6/6)

- ✓ English Competency
- ✓ Proof of ID
- ✓ DBS
- ✓ Occupational Health
- ✓ Right to Work
- ✓ References
- ✓ **Compliant**

Update



Microsoft Partner
Gold Application Development
Silver Application Development



NASSCOM
Microsoft Small Business Specialist



JAS-ANZ
ISO 9001:2008
ISO 27001:2005

openQRM
ENTERPRISE SOLUTION PARTNER

Company Confidential

4. Payroll Accounting System

It is cloud accounting software which lets you run cross company payroll, bank reconciliation and submit VAT. It is helpful to the UK Contractor accountants. It delivers compliance, reduce cost and present a white labelled client experience. It has below modules.

1. Construction Industry Scheme (CIS):

- This can generate and manage payroll and invoices of the employees of the company.
- The system can communicate to HMRC and verify the employee of the company.
- System can submit the CIS Deduction to HMRC directly through the RTI Feature.

Reference	Company Name	Director	Trading Status	Tax Planning		
✖	WVW01	Empty Hand Trucks	Trading		Employees	Go
✖	1114911111	Coventry Consulting Ltd (UK Parent)	Trading		Employees	Go
✖	SFJALTO	Self Storage Ltd (UK Parent)	Trading		Employees	Go
✖	TESTING.IT	IT Services Limited	Trading		Employees	Go
✖	CONSULTANT	Consultant Tompkins (UK)	Trading		Employees	Go
✖	COM1	Full Template (UK) Ltd (UK)	Trading		Employees	Go
⚠	111111111	UK Template (UK)	Trading		Employees	Go
✖	1111111	Full Template (UK) Ltd (UK)	Trading		Employees	Go
✖		Empty Hand Trucks (UK)	Trading		Employees	Go
⚠		Empty Hand Trucks (UK)	Trading		Employees	Go

Home Companies Employees Books Trading Contacts Documents Reports Illustrations About

Employees List

[Create New Employee](#)
[Import Employee](#)
[Include Leavers](#)
[Include Dormant](#)

Search:

Emp Ref	Name	Email	Username	Dormant	Leaver
10000000	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000001	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000002	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000003	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000004	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000005	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000006	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000007	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000008	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000009	James, John	lccj@ustacc.com	lccj@ustacc.com	No	
10000010	James, John	lccj@ustacc.com	lccj@ustacc.com	No	

Home Companies Employees Books Trading Contacts Documents Reports Illustrations About

Timesheets List

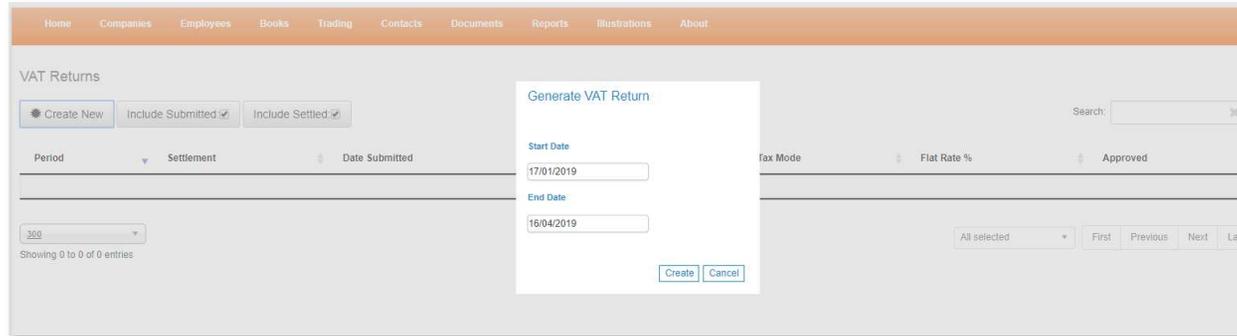
[Create New Timesheet](#)
[Batch Update](#)
[Include Paid](#)
[Include Invoiced](#)
[Include Invalid](#)

Search:

For Dates	Employee Reference	Employee	Status	Approved Date	Duration	Invoice	Pay Date
10/1/2014 - 10/1/2014	10000000	James, John	Approved	10/01/2014 10:00:00	0:00:00		
13/12/2013 - 19/12/2013	10000000	James, John	Now	14/01/2014 14:10:46			
10/12/2013 - 16/12/2013	10000000	James, John	Now	14/01/2014 15:06:16	47.0736777777778 hours		
1/12/2013 - 7/12/2013	10000000	James, John	Now	14/01/2014 15:08:16	28.0000000000000 hours		
1/12/2013 - 7/12/2013	10000000	James, John	Payable	14/01/2014 15:08:16			
10/12/2013 - 16/12/2013	10000000	James, John	Payable	14/01/2014 15:06:49			
17/12/2013 - 23/12/2013	10000000	James, John	Payable	14/01/2014 15:06:27			
10/12/2013 - 16/12/2013	10000000	James, John	Now	14/01/2014 15:08:16	0:00:00		
1/1/2014 - 7/1/2014	10000000	James, John	Payable	14/01/2014 15:08:24			
1/1/2014 - 7/1/2014	10000000	James, John	Now	14/01/2014 15:08:24	4:00:00		

2. VAT Returns

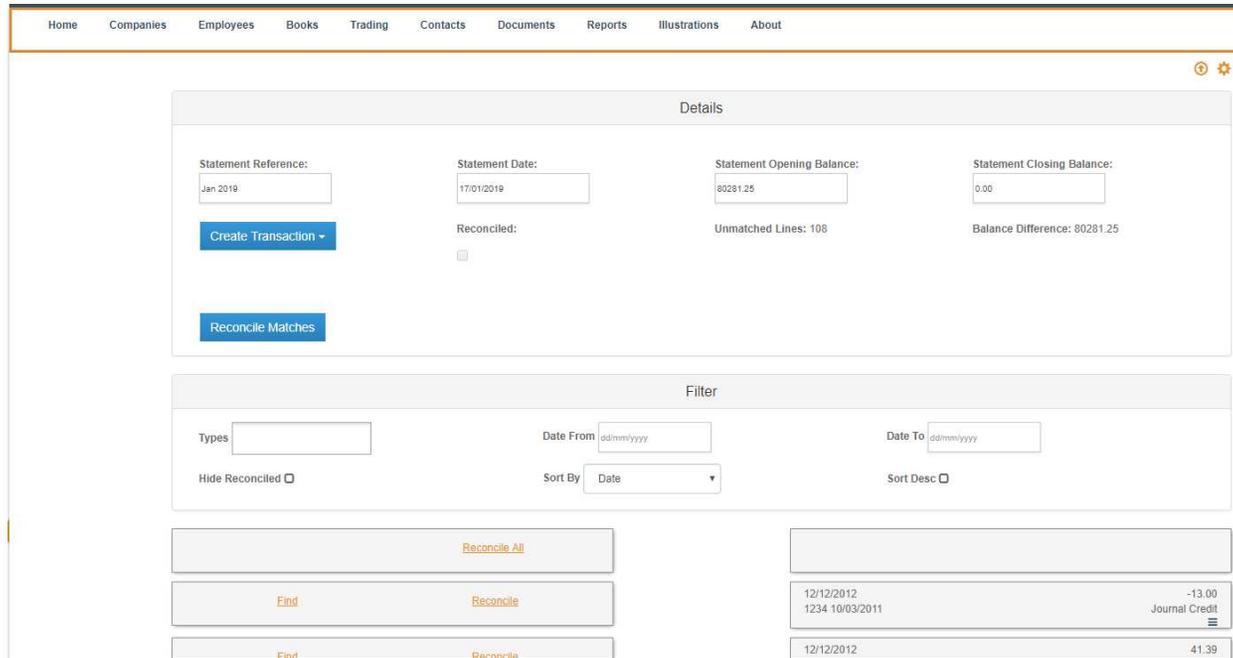
- The VAT Return allows you to process, submit and settle VAT Returns for companies and directly submit to HMRC. In the VAT Return screen, you can select and view the details.
- It can submit up to 300 returns directly to HMRC.
- A real-time status can be seen whether VAT submission has been successful or not.



The screenshot shows the 'VAT Returns' interface. At the top, there is a navigation menu with items: Home, Companies, Employees, Books, Trading, Contacts, Documents, Reports, Illustrations, and About. Below the menu, the 'VAT Returns' section contains several buttons: 'Create New', 'Include Submitted' (checked), and 'Include Settled' (checked). A search bar is located on the right. Below these are columns for 'Period', 'Settlement', 'Date Submitted', 'Tax Mode', 'Flat Rate %', and 'Approved'. A dropdown menu is set to '300', with the text 'Showing 0 to 0 of 0 entries' below it. A 'Generate VAT Return' modal window is open, showing 'Start Date' as 17/01/2019 and 'End Date' as 16/04/2019, with 'Create' and 'Cancel' buttons at the bottom. Pagination controls at the bottom right show 'All selected', 'First', 'Previous', 'Next', and 'Last'.

3. Bank Reconciliation

- You can manually reconcile a bank statement, import your client's bank statements directly from APS Cashplus or Yodlee
- The bank reconciliation is easy and simple to process.
- You can preview the import statement and can confirm your transactions. You can then enter opening and closing balances.



The screenshot shows a web-based interface for bank reconciliation. At the top is a navigation menu with items: Home, Companies, Employees, Books, Trading, Contacts, Documents, Reports, Illustrations, and About. Below the menu is a 'Details' section with the following fields:

- Statement Reference: Jan 2019
- Statement Date: 17/01/2019
- Statement Opening Balance: 80281.25
- Statement Closing Balance: 0.00

Below these fields are buttons for 'Create Transaction -', 'Reconciled:' (with a checkbox), 'Unmatched Lines: 108', and 'Balance Difference: 80281.25'. A 'Reconcile Matches' button is also present.

The 'Filter' section includes:

- Types: [input field]
- Date From: dd/mm/yyyy [input field]
- Date To: dd/mm/yyyy [input field]
- Hide Reconciled:
- Sort By: Date [dropdown menu]
- Sort Desc:

At the bottom, there are buttons for 'Reconcile All', 'Find', and 'Reconcile'. A table below shows transaction details:

12/12/2012	1234 10/03/2011	-13.00
		Journal Credit
12/12/2012		41.39

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