Mechanics

* Mechanic
  + ID = 40391
  + Name: Marsha Knight
  + mechanic\_id="40391"
* Mechanic
  + ID = 40392
  + Name: Mark O’Sullivan
  + mechanic\_id="40392"
* Mechanic
  + ID = 40393
  + Name: Tim Stanley
  + mechanic\_id="40393"
* Mechanic
  + ID = 40394
  + Name: Bob Curtis
  + mechanic\_id="40394"
* Mechanic
  + ID = 40395
  + Name: Willie Walsh
  + mechanic\_id="40395"

Admins

* Admin
  + ID = 102
  + Name: Jim Ryan
* Admin
  + ID = 202
  + Name: Timmy Bob
* Admin
  + ID = 105
  + Name: Fergus Moyles

Vehicles

* Vehicle
  + ID = 2019
  + Make: Ford
  + Model: Transit
  + Vehicle Type: Ambulance
* Vehicle
  + ID = 4930
  + Make: Ford
  + Model: Transit
  + Vehicle Type: Ambulance
* Vehicle
  + ID = 13984
  + Make: Mercedes Benz
  + Model: Sprinter
  + Vehicle Type: Ambulance
* Vehicle
  + ID = 1246
  + Make: Hyundai
  + Model: i40
  + Vehicle Type: Garda Car
* Vehicle
  + ID = 4958
  + Make: Audi
  + Model: Q7
  + Vehicle Type: Garda Car

Queries

* Check for vehicle major service
  + VehicleMaintenance
  + VehicleManagement
  + Services
  + MechanicsInfo
* Check for parts in stock for a particular service **\*\*MICHAEL\*\***
* For vehicle x print mechanics who’ve serviced it **\*\*MICHAEL\*\***
* Get ALL free mechanics (is\_servicing = false) **\*\*BRANDON\*\***
* Get a high priority service to be done \*\*CIAN\*\*
* Check the stock of a part in the inventory \*\*CIAN\*\*
* Payroll query for mechanics **\*\*BRANDON\*\***
* Get all vehicles that need service (needsService = YES) **\*\*ARTHUR\*\***
* Check if admin has privileges for mechanic**\*\*WILLIAM\*\***

WHERE Queries:

1. **Query 2** - Uses *where*
2. **Query 7** - Uses *where*
3. **Query 8**

FOR Queries:

1. **Query 1** - Uses *for*
2. **Query 7** - Uses *for*

LET Queries:

1. **Query 1** - Uses *let*

BUILT IN Xquery Function Queries:

1. **Query 1** - Uses *concat*
2. **Query 9** - Uses string

USER Functions:

1. **Query 8**
2. **Query 9**

**QUERY 1 - Returns Payroll Information for all Mechanics (Brandon)**

*declare function local:get\_mechanics\_payroll\_info()*

*{*

*let $c:= doc("secondyear/mt/infoman\_cs2041/assignments/assignment\_2\_XML/mechanics\_info.XML")*

*for $m in $c/Mechanics\_Info/Mechanic*

*let $firstname := $m/name/first\_name/text()*

*let $surname := $m/name/surname/text()*

*let $fullname := concat($firstname," ",$surname)*

*return*

*<payroll\_info>*

*<mechanic id ="{ $m/@mechanic\_id }" >*

*<name> {$fullname} </name>*

*{$m/details/bank\_details}*

*</mechanic>*

*</payroll\_info>*

*};*

*<Mechanics\_Payroll\_Info>*

*{local:get\_mechanics\_payroll\_info()}*

*</Mechanics\_Payroll\_Info>*

**QUERY 2 - Returns all free Mechanics (Brandon)**

*declare function local:get\_free\_mechanics()*

*{*

*let $c:= doc("secondyear/mt/infoman\_cs2041/assignments/assignment\_2\_XML/mechanics\_info.XML")*

*for $m in $c/Mechanics\_Info/Mechanic*

*where $m/is\_servicing/text() = "false"*

*let $firstname := $m/name/first\_name/text()*

*let $surname := $m/name/surname/text()*

*let $fullname := concat($firstname," ",$surname)*

*return*

*<mechanic id ="{ $m/@mechanic\_id }" >*

*<name> {$fullname} </name>*

*</mechanic>*

*};*

*<Free\_Mechanics>*

*{local:get\_free\_mechanics()}*

*</Free\_Mechanics>*

**QUERY 3 - Service history for all mechanic x (Brandon)**

*declare function local:get\_service\_history\_for($mechanicname as xs:string)*

*{*

*let $c:= doc("secondyear/mt/infoman\_cs2041/assignments/assignment\_2\_XML/mechanics\_info.XML")*

*for $m in $c/Mechanics\_Info/Mechanic*

*let $fullname := concat($m/name/first\_name/text()," ",$m/name/surname/text())*

*where $fullname = $mechanicname*

*return*

*<mechanic id ="{ $m/@mechanic\_id }" >*

*<name> {$fullname} </name>*

*{$m/vehicles\_serviced}*

*</mechanic>*

*};*

*<Service\_History>*

*{local:get\_service\_history\_for("Mark O'Sullivan")}*

*</Service\_History>*

**QUERY 4 - High priority services that need to be done (Cian)**

for $s in /services/service,

$v in /vehicleMaintenance/service

where $v/priority = "high"

where $v/string(@id) = $s/string(@id)

return

<high\_priority>

{$s/vehicleID}

{$s/serviceDescripton}

{$s/serviceType}

</high\_priority>

**QUERY 5 - Check stock for a part in inventory (Cian)**

*for $s in /partsInventory/part*

*where contains($s/@category,"clutch")*

*return*

*<part\_details>*

*{string($s/@category)}*

*{$s/name}*

*{$s/partDescription}*

*{string($s/@stock)}*

*{$s/RRP}*

*{string($s/@id)}*

*</part\_details>*

**QUERY 7 - Return all vehicles that need servicing (Arthur)**

*for $j in /vehicleMaintenance/service,*

*$i in /services/service,*

*$x in /Vehicle\_Management/Vehicle*

*where $j/string(@id) = $i/string(@id)*

*where $i/string(vehicleID) = $x/string(@VehicleID)*

*return*

*<Needs\_Service>*

*{$i/vehicleID}*

*{$x/VehicleDetails}*

*</Needs\_Service>*

**QUERY 8 - Check for parts in stock for a particular service (Michael)**

declare function local:partsInStock($service\_id as xs:string) {

for $servicesInMaintenance in doc("vehicle\_maintenance.xml")/vehicleMaintenance/service[@id = $service\_id],

$services in doc("services.xml")/services/service,

$partsInStock in doc("parts\_inventory.xml")/partsInventory/part

where $servicesInMaintenance/@id = $services/@id

where $services/partsNeeded/part/@id = $partsInStock/@id

return $partsInStock

};

<parts>

{local:partsInStock("40292")}

</parts>

**QUERY 9 - For Vehicle x print mechanics who’ve serviced it (Michael)**

declare function local:mechanicsServiced($vehicle\_id as xs:string) {

for $mechanic in doc("Mechanics\_Info.xml")/Mechanics\_Info/Mechanic

where $mechanic/vehicles\_serviced/Vehicle/string(@VehicleID) = $vehicle\_id

return

<mechanic>

{$mechanic/name}

<mechanicID>{$mechanic/string(@mechanic\_id)}</mechanicID>

</mechanic>

};

<mechanics>

{local:mechanicsServiced("2019")}

</mechanics>

**QUERY 10 - Check if admin has privileges for mechanic**

declare function local:checkPrivileges($adminid as xs:string, $mechid as xs:string) {

let $admin := doc("Admin\_Info.xml")/Admin\_Info/Admin[@user\_id = $adminid]

for $mechanicIds in $admin/user\_privileges/mechanic\_ids/mechanic\_id

where contains(string($mechanicIds), $mechid)

return if ($mechanicIds)

then "true"

else "false"

};

local:checkPrivileges("102", "40391")