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Using IntegratedML to create a cube dimension

Hi guys.

That time I'll show you a way to use a machine learning model implemented using IntegrateML as source for an IRIS analytics cube dimension.

Creating the ML model:

Execute this SQL in order to create a new ML model using IntegratedML SQL extension:

```
CREATE MODEL AppointmentsPredection
PREDICTING (Show)
FROM (SELECT
    Canal,
    CreacionDate,
    CreacionHora,
    Edad,
    Especialidad,
    Latencia,
    ReservaDate,
    ReservaHora,
    Sexo,
    Tipo
FROM dc_myapp_model.MedicalAppointments
```

Now, you can train you model:

```
TRAIN MODEL AppointmentsPredection FROM dc_myapp_model.MedicalAppointmentsTrain
```

Finally, you can see how good your model is:

```
VALIDATE MODEL AppointmentsPredection FROM dc_myapp_model.MedicalAppointmentsTest
```

MODEL_NAME	TRAINED_MODEL_NAME	PROVIDER	TRAINED_TIMESTAMP	MODEL_TYPE	MODEL_INFO
AppointmentsPredection	AppointmentsPredection2	AutoML	2020-12-27 21:54:14.948	classification	ModelType:Random Forest, Package:sklearn, ProblemType:Classification

1 row(s) affected
Creating the cube dimension:

The trick is to use an expression as input for the dimesion. This is done by setting the Expression property of the dimension:

The method expression code uses the PREDICT function of IntegratedML to classifiy an new entry using the ML

model created early:

```
ClassMethod PredictMedicalAppointmentClass(pID As %String) As %String
{
    Set modelClass = ##class(dc.myapp.model.MedicalAppointments).ShowGetStored(pID)
    If modelClass '= "" {
        Return ""
    }
    &SQL(SELECT PREDICT(AppointmentsPredection) INTO :modelClass FROM dc_myapp_model.Me
dicalAppointments WHERE ID = :pID)
    return $Case(modelClass, 0:"No show", 1:"Show", : "")
}
```

So, with this approach you can create a dimension which will show to users a prediction about future appointments.

Using your new cube in a notebook:

As now you has a cube with dimensions that can show past appointments as do predictions about future appointments, you can explore this information in a notebook.

For example, you can create a pivot table showing the history of past appointments:

And ,you can also show the forecast for future appointments using the dimension which uses an IntegratedML prediction model:

You can access this example in my application by seaching a notebook called "medical-appointments".

[#InterSystems IRIS #InterSystems IRIS BI \(DeepSee\)](#)

[Check the related application on InterSystems Open Exchange](#)

Source URL:<https://community.intersystems.com/post/using-integratedml-create-cube-dimension>