Unité d'Enseignement en Informatique
Année 2014-2015

Master M1 EFREI – ASI – BI
Devoir Écrit de ERP – First Session April 16, 2015
(2h00 duration, no document allowed)

Rule: *All answers must be written in English.*

Exercise 1: (5 points)

1) First ERP software systems were developed since the early 1990's. However, the information system of many companies migrated for ERP only around the period 1999-2001. What are the two main events which caused this evolution towards ERP?
2) Cite three of the activities which can usually be found in the back-office of a company and give the designation and acronym of the corresponding module in ERPs.
3) Since December 2014, the next version of OpenERP 7 is Odoo 8. What activity, not considered as a back-office activity, is from now also managed by Odoo?
4) Can SAP NetWeaver be used for applications not developed by SAP?
5) What is the highest organizational element in SAP?

Exercise 2: (3 points)

A company using OpenERP would like to display some stock level information on its website.

1) What is the DBMS used by OpenERP to store data?

2) How could you properly request the database of OpenERP in order to display information on the website of the company?

3) What are doing the following source lines of code? What programming language is used? What library is used?

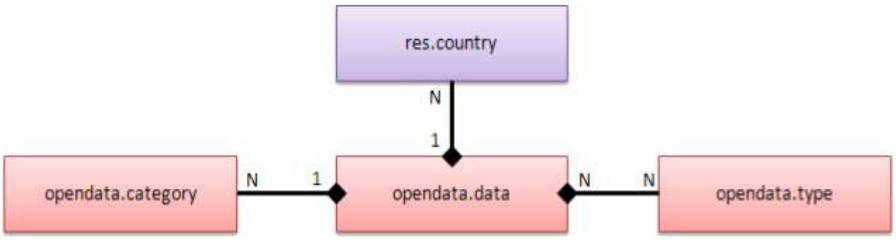
```
$client = new XML_RPC_Client('/xmlrpc/common', 'http://'.$host.':'.$port);
$client->setDebug($debug);

$msg = new XML_RPC_Message('login');
$msg->addParam(new XML_RPC_Value($db, 'string'));
$msg->addParam(new XML_RPC_Value($user, 'string'));
$msg->addParam(new XML_RPC_Value($pass, 'string'));

$resp = $client->send($msg);
$val = $resp->value();
$uid = $val->scalarval();
```

Exercise 3: (12 points)

Some companies are leaders on Big Data market and are specialized on Open Data treatment and analysis. In order to help these companies managing a huge number of Open Data download points, we started to develop a new OpenERP module. The data model of this new module is detailed below. An Open Data is hosted and produced in a country, and a country can host and produce several Open Data. Moreover, different types of Open Data exist and it can be available under different formats (CSV, XML, JSON …). Thus, each Open Data can belong to different types, and several Open Data can be of the same type. Finally, each Open Data belongs to one category, and a category can gather several Open Data.



The writing of source code of `opendata.category` has already begun. See the four files `opendata.py`, `opendata_data.xml`, `opendata_view.xml` and `opendata_workflow.xml` below. In order to continue this development, you have to answer the following questions.

1) Define the business object `opendata.type` with 2 columns defining the name and the format of the type. Then, write the corresponding `tree` and `form` views.

2) Define the business object `opendata.data` with 6 columns, defining particularly the three relations with the other business objects, and also:

- The name of the data download point
- The URL of the data download point
- The updating periodicity of the data (expressed as a number of days)

3) Create the search view for the business object `opendata.data` and define the following filtering:

a) Filter open data download points which are daily updated
b) Filter open data download points which are only updated several times per month
c) Filter open data download points which are only updated several times per year
d) Group open data download points by country
e) Group open data download points by category

4) A workflow has already been defined (see the file `opendata_workflow.xml`) and is illustrated on figure 2. Give the modifications of code to perform on the file `opendata_workflow.xml` in order to implement the workflow illustrated on figure 3.

5) What column has to be added to the model `opendata.data` in order to define the states of the workflow of this business object? Give the modifications of code in order to define this column.

opendata.py

```
from openerp.osv import osv
from openerp.osv import fields
from openerp.tools.translate import _
import time

listFMT = [('xml', 'Extensible Markup Language'), ('csv', 'Comma-separated values'), \
          ('json', 'JavaScript Object Notation'), ('xls', 'Microsoft Excel'), \
          ('rdf', 'Resource Description Framework')]

class opendata_category(osv.osv):
    """ The category of Open Data objects """
    _name = "opendata.category"
    _description = "The category of Open Data objects"
    _columns = {
        'name': fields.char('Category', size=64, required=True),
        'description': fields.char('Description', size=512, required=True),
        'public': fields.boolean('Public organism', required=True),
        'license': fields.char('License', size=64, required=True),
    }
    _sql_constraints = [
        ('name', 'unique(name)', 'The name of a category must be unique')
    ]
    _order = 'name asc'

```

opendata_data.xml

```
<?xml version="1.0"?>
<openerp>
    <data>
        <record model="opendata.category" id="opendata_category_chemistry">
            <field name="name">Open Chemistry Scientific data </field>
            <field name="description">Data used by researchers in the field of
Chemistry.</field>
            <field name="public" eval="True"/>
            <field name="license">CC-BY-SA</field>
        </record>
        <record model="opendata.category" id="opendata_category_medicinals">
            <field name="name">Medicinals governments data</field>
            <field name="description">Data produced by governments healthcare programs.</field>
            <field name="public" eval="True"/>
            <field name="license">ODC-by</field>
        </record>
        <record model="opendata.type" id="opendata_type_temperature1">
            <field name="name">Paris forecast recordings Excel 97</field>
            <field name="format">xls</field>
        </record>
        <record model="opendata.type" id="opendata_type_temperature2">
            <field name="name">Paris forecast recordings CSV</field>
            <field name="format">csv</field>
        </record>
        <record id="base.user_demo" model="res.users">
            <field name="groups_id" eval="[(4,ref('base.group_user'))]"/>
        </record>
    </data>
</openerp>
```

opendata_view.xml

```xml
<?xml version="1.0"?>
<openerp>
  <data>
    <!-- Opendata Category: Form View -->
    <record model="ir.ui.view" id="view_opendata_category_form">
      <field name="name">opendata.category.form</field>
      <field name="model">opendata.category</field>
      <field name="arch" type="xml">
       <form string="Category of Open Data" version="7.0">
         <label for="name"/><field name="name"/>
         <label for="description"/><field name="description"/>
         <label for="license"/><field name="license"/>
         <label for="public"/><field name="public"/>
       </form>
      </field>
    </record>

    <!-- Opendata Category: Tree View -->
    <record model="ir.ui.view" id="view_opendata_category_tree">
      <field name="name">opendata.category.tree</field>
      <field name="model">opendata.category</field>
      <field name="field_parent"></field>
      <field name="arch" type="xml">
       <tree string="Category of Open Data">
         <field name="name"/>
         <field name="license"/>
          <field name="public"/>
       </tree>
      </field>
    </record>

    <!-- Opendata Category: Search View  -->
    <record model="ir.ui.view" id="view_opendata_category_search">
      <field name="name">opendata.category.search</field>
      <field name="model">opendata.category</field>
      <field name="arch" type="xml">
        <search string="Models of Open Data">
          <filter string="Public organism" domain="[('public','=', True)]" help="Data
producer"/>
          <filter string="Private organism" domain="[('public','=', False)]" help="Data
producer"/>
          <group expand="0" string="Group By...">
            <filter string="licence" help="Access license" context="{'group_by':'license'}"/>
          </group>
        </search>
      </field>
    </record>

    <!-- Opendata Category: Action -->
    <record model="ir.actions.act_window" id="action_opendata_category">
      <field name="name">Categories</field>
      <field name="res_model">opendata.category</field>
      <field name="view_type">form</field>
      <field name="view_mode">tree,form</field>
      <field name="search_view_id" ref="view_opendata_category_search"/>
    </record>

    <!-- Top menu item -->
    <menuitem name="Open Data" id="base.menu_opendata_root" sequence="120"
groups="base.group_user"/>

    <!-- Menus sections -->
    <menuitem name="Configuration" id="menu_opendata_configuration"
parent="base.menu_opendata_root" sequence="2"/>

    <!-- Menus items -->
    <menuitem name="Categories" id="menu_opendata_categories"
parent="menu_opendata_configuration" action="action_opendata_category" sequence="1"/>

  </data>
</openerp>
```

opendata_workflow.xml

```xml
<?xml version="1.0"?>
<openerp>
    <data>
        <!-- WORKFLOW -->
        <record model="workflow" id="wkf_data">
            <field name="name">data.wkf</field>
            <field name="osv">opendata.data</field>
            <field name="on_create">True</field>
        </record>

        <!-- STATES -->
        <record model="workflow.activity" id="act_data_draft">
            <field name="wkf_id" ref="wkf_data" />
            <field name="name">draft</field>
            <field name="kind">function</field>
            <field name="action">data_draft()</field>
            <field name="flow_start">True</field>
        </record>

        <record model="workflow.activity" id="act_data_open">
            <field name="wkf_id" ref="wkf_data" />
            <field name="name">open</field>
            <field name="kind">function</field>
            <field name="action">data_open()</field>
        </record>

        <record model="workflow.activity" id="act_data_close">
            <field name="wkf_id" ref="wkf_data" />
            <field name="name">close</field>
            <field name="kind">function</field>
            <field name="action">data_close()</field>
            <field name="flow_stop">True</field>
        </record>

        <!-- TRANSITIONS -->
        <record model="workflow.transition" id="trans_data_draft_open">
            <field name="act_from" ref="act_data_draft" />
            <field name="act_to" ref="act_data_open" />
            <field name="signal">signal_data_open</field>
        </record>

        <record model="workflow.transition" id="trans_data_open_close">
            <field name="act_from" ref="act_data_open" />
            <field name="act_to" ref="act_data_close" />
            <field name="signal">signal_data_close</field>
        </record>

    </data>
</openerp>
```

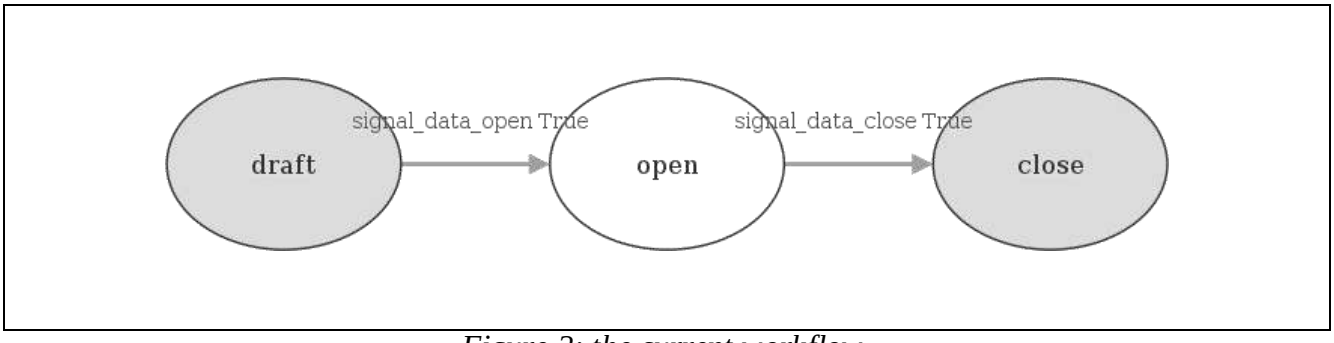


Figure 2: the current workflow.

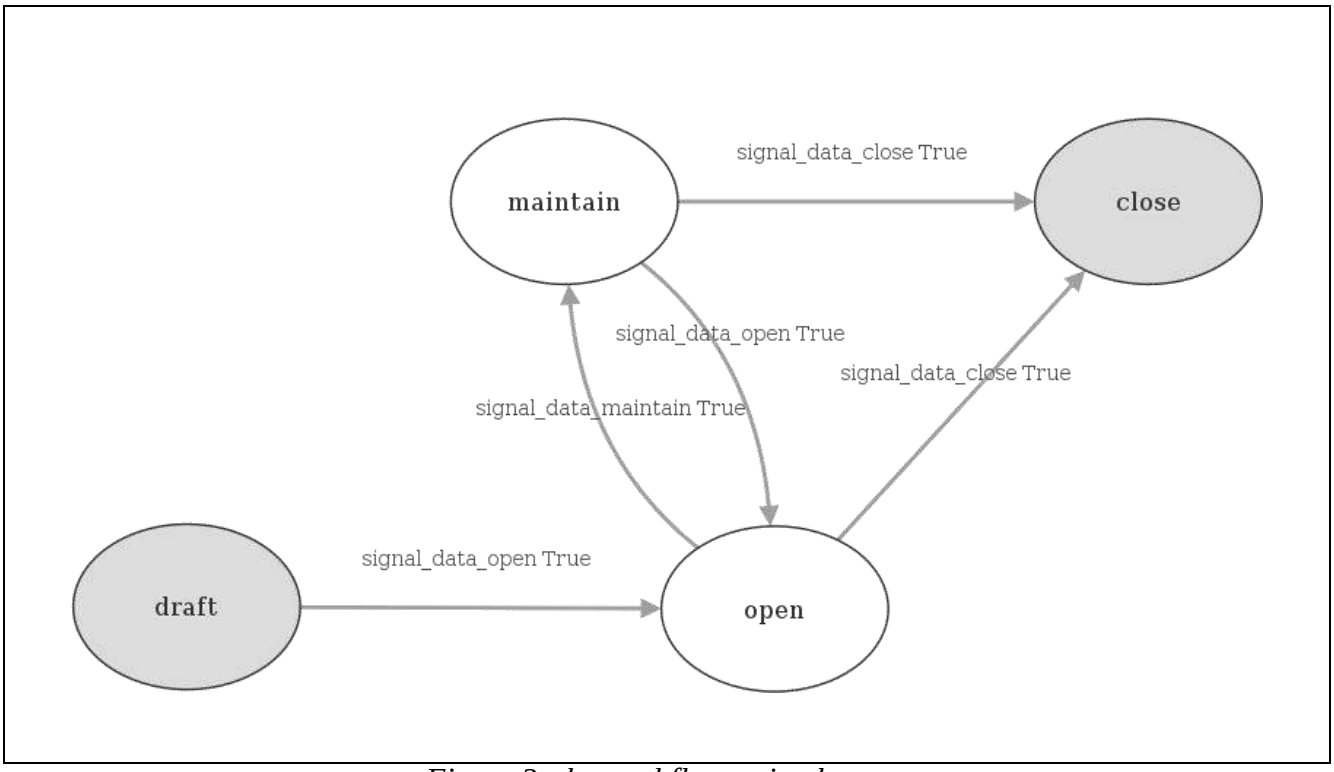


Figure 3: the workflow to implement.