

# The Programming Based on Configuration File

Lai Xiao-ping

Department of Information Project  
Zhao Qing Science and Technology Polytechnic  
Zhaoqing China  
laixiaoping1008@163.com

Xiong Yan, Guo Song

School of Computer and Information Technology  
Xinyang Normal University  
Xinyang China

**Abstract**—Configurable Programming is a programming method in order to resolving the interface limitation of OO Programming, its advantage lies in that programmer can change the settings using configuration file, but unnecessary recompiling application, so business logic is separated. Configuration file is the most important part for configurable programming. This article introduces detailedly the configuration file of some applications, consequently embodies the advantage of configurable programming.

**Keywords**- *Progress-Oriented, Object-Oriented, Configurable Programming, Configuration File*

## I. PREFACE

With the development of computer technology, computer application domain expands unceasingly, the complex degree of software size and structure also increase ceaselessly. In order to satisfy the software production in terms of quality and quantity demand, software developers are constantly seeking better software development techniques, and programming design method is also in the continuous development. From the initial process-oriented programming, that later popular object-oriented programming, currently configurable programming with its advantages has been applied more and more.

## II. OBJECT-ORIENTED PROGRAMMING

In programming, the presented method is process-oriented programming, it is a kind of top-down design method, namely the analysis to solve problems required steps, then using function put these steps step by step. In an application, you can use a realization of ordinal calls. Process-oriented programming advantage is easy to understand and master, the design method of refined problem gradually is closer to most people's way of thinking. However, for complex problem, or in developing changing needs more time, the process type design usually ragged.

With the accelerated development of information system, applications are becoming increasingly complicated and large-scale. The traditional software development technology is difficult to meet the new requirements of development. After the 1980s, object-oriented programming technology matures and is to be gradually understood and accepted by the computer world. Object oriented programming method and technique is the most active one field in the software research and application development.

The bottom-up characteristics of Object-oriented programming allows developers start from the local of question, and then deepen the understanding of system gradually during the development process. These new understanding and developing meet changing needs, will again role to system development itself, and it will form a spiral development way. In the object-oriented design, class wrap the data and class member functions are to be as the external interface, abstractly describing class. Data and operating these data function are to be together with class, and it is the essence of object-oriented design method.

Object-oriented programming is functional to differentiate the problem, not step. If the past decade called "OO age", it believes that will not cause too much discrepancy. Object-oriented technology is so widely attention, mainly which the object-oriented ideas close to the actual of the objective world, and accord with people usually way of thinking, so they are easy to be accepted by people. Basing on the basic-level traditional OO three factors (encapsulation, inheritance and polymorphism), people develop more new technologies, which can make up the defects of OO, and make OO methods and techniques to better solve the development of software problems.

However, a large limitation of OO programming is that it divided the software responsibilities vertically. In a standard object inherit system, each inherit class mainly is responsible for a particular part of the function of the software system, and the object behavior is decided during compiling. Another big problem of OO programming is interface problems. In the traditional OO environment, object developers don't have any way to ensure users according to their own requirements to use interfaces. Because of these shortcomings of OO programming, according to the rules of the development of things, it will inevitably promote the new program design method appears to solve these problems.

## III. CONFIGURABLE PROGRAMMING

Because of object-oriented programming limitations, in order to make up for the defect, software developers put forward the configurable programming method, using a configuration file as procedures and external interface file, so that the software users modify the interface file only according to their own requirements, but do not need to make any other changes, it can satisfy the different needs.

Application configuration files are standard XML files, and XML tags and attributes are case-sensitive. It can be changed according to the need, and its advantages are that developers can use configuration files to change any Settings, without having to recompile application, thus the business logic is separated. Administrators can use configuration files to set the tactics to affect the operating way of application during computer running.

#### A. The Configuration File of Asp.net Web Application

Web.config file is an XML text file, it is used to store the configuration information of asp.net Web application (such as the most commonly configuration information used setting asp.net Web applications). When you create a Web application through the .net, it will automatically create a default configuration file in the root directory named Web.config, including the default configuration Settings.

Web.Config is stored by the way of XML file standard, and configuration file divided into the following format:

- Configuration section processing program statement, located at the top of the configuration file, included in <configSections> tag.
- Specific application configuration, located in <appSetting>, and it can define the global constants setting information of the application.
- Configuration section setting, located in <system.Web> section, and it controls asp.net runtime behavior.
- Configuration section group, located in <sectionGroup> tag.

For example, the following code defines a connection string constant, and in practical application, you can modify the connection string, and need not modify the program code.

```
<appSettings>
  <add key="Connection" value="server=192.168.85.66; userid=sa; password=; database=Info; "/>
</appSettings>
```

At runtime, you can modify Web.config, and need not to restart service, which can take effect. The configuration file decreases tightly coupling between program and external environment, make application more flexible, easy deployment.

#### B. Data Source Configuration File of Application Server JBOSS

The following is the data source configuration file of JBOSS, named oracle-ds.xml:

```
<datasources>
  <local-tx-datasource>
    <jndi-name>jdbc/test</jndi-name> <connection-url>jdbc:oracle:thin:@127.0.0.1:1521:oradb</connection-url>
    <driver-class>oracle.jdbc.driver.OracleDriver</driver-class>
    <user-name>guest</user-name>
    <password>guest</password>
  </local-tx-datasource>
```

```
</datasources>
```

It defines a named JDBC/test data source, its parameters including JDBC URL, driver class name, user name and password etc. Programming code using directly JDBC or through JNDI to reference data sources is very nearly the same, but now the program can need not concern specific JDBC parameters. After system deployed, when database related parameters changed, only need to reconfigure the oracle-ds.xml, modify one of the JDBC parameters, as long as the guarantee the data source name is changeless, then source code without modification. Thus, JNDI decreases tightly coupling between program and database, make application more configurable, easy deployment.

#### C. Custom configuration file

User also can define configuration file according to the actual application during the development process, and the file may contain some user-defined tags. When The external environment changes, the user simply modify corresponding parameters in the configuration file, but need not change the code, recompile the program, thereby it saves much manpower and material resources, strengthens the program's extensibility and reusability, and it is the most important goals of software engineering proposed for application.

Now, we are in the information age, someone described information age as: the knowledge explosion + knowledge sharing + IM + immediate query. It has become one of the important indispensable function of applications, querying the required information from the huge amount of information.

The most important application of custom configuration file is realizing general inquiries. General inquiries use uniform query description and general query processing engine, instead of writing different query the relevant code for different query application, and the most codes need to repeat written are handled by the general engine. Through the use of general templates and engine, when you make much application development, you do not need to write pages and business logic, thus decreasing the amount of repetition of work, only need to make a corresponding configuration for a specific application.

Using development based on the template and engine, the quality of products, such as performance, reliability, etc, can be centralized control and optimization, and it can make the developers only pay attention to business details, and the developers can be liberated from the technical implementation details. The Figure 1 shows general query architecture.

General query configuration file frame as follows :

```
<?xml version="1.0" encoding="GB18030" ?>
<sqldatasource>
  <sqltext type=""></sqltext> <!-- 0 SQL statement ; 1
name/value ; 3 class name -->
  <displaycolumn></displaycolumn> <!--column name
list, set the default which columns show -->
  <topcount></topcount> <!--get the front record count --
>
```

```

<orderby></orderby> <!-- Sorting field list -->
<groupby></groupby> <!-- Grouping field list -->
<displaytotalrow></displaytotalrow> <!-- Whether
shows aggregate lines: true false -->
<displaytotalcolumn></displaytotalcolumn> <!--
Whether shows aggregate columns: true false -->
<parameters> <!-- define parameters -->
    <parameter default="" source="" type="" name=""
alias=" " operator=" " dynamic=" "
emptyusedefault="true"></parameter>
    <!--default: parameter default value; source: 0-
constant, 1-bus node, 2-interface component; type: 0-no
datatype, 1-NUMERIC, 2-STRING, 5-DATETIME; dynamic:
0-static parameter, 1- dynamic parameter; emptyusedefault:
When there is not corresponding parameters, whether to use the
default value -->
</parameters>
<actions><!-- the event configuration of query -->
    <action className=""></action>
</actions>
<queryreturn>
    <queryreturnfields></queryreturnfields>
    <!--return the value of field -->
    <queryreturntextfields></queryreturntextfields><!--
return the text of field -->
</queryreturn>

```

```

<fdisplayformat> <!-- Scheme results format -->
    <gridset> <!-- Query result formatting information -->
</gridset>
</fdisplayformat>
</sqldatasource>

```

The user only writes configuration file according to format requirement of the framework, but don't need to modify the code, and can achieve various query, thereby strengthening the program reusability.

#### IV. SUMMARY

Configuration files uses more convenient, it believes the near future that even the person who unknown program design can also be supplied with common function, thus it makes the program design also more and more easily. Configurable programming has obtained more and more the favors of software developers and users, this technology is also constantly ripe, program design will develop along the technical route.

- [1] ShuangYuan Shi. Object-oriented Method of Development[M]. Science press, 2007-07
- [2] Using Examples Explain the Differences Between Object-Oriented and Process Programming [EB/OL]. [2007-9-20]. <http://www.soft6.com/tech/9/90898.html>
- [3] XiaoHong Chen. Process-Oriented and Object-Oriented - the Comparative and Thinking About Two Pogram Design Method[J]. Computer Era, the tenth edition 2001
- [4] XML configuration file read processing[ EB/OL].[ 2007-3-22]. <http://www.mp3sea.net/Java/2007-3-22/XML-PeiZhiWenJianDeDouQuChuLi-29ir12506.htm>

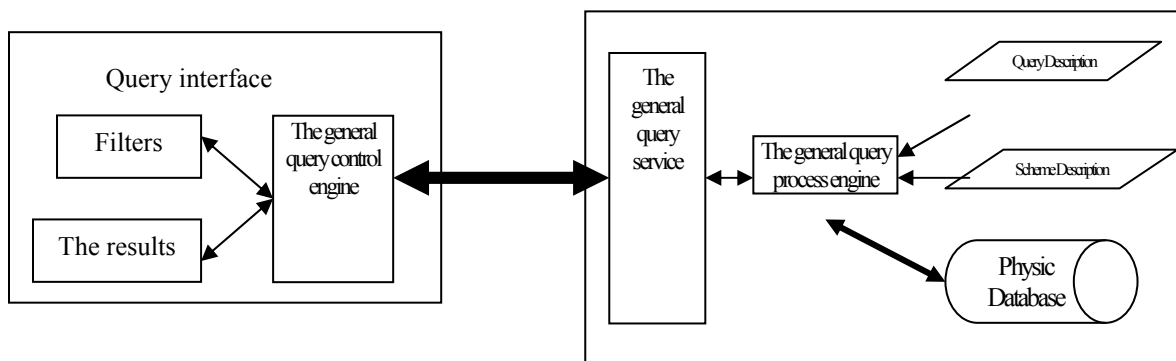


Figure 1 General Query Architecture