



# Deusto

**Facultad de Ingeniería**  
Universidad de Deusto

**Ingeniaritza Fakultatea**  
Deustuko Unibertsitatea

## **Ingeniero en Informática** **Ingeniero en Organización Industrial** **Informatikako Ingeniaria** **Industri Antolaketako Ingeniaria**

### **Proyecto fin de carrera** **Karrera amaierako proiektua**

Un proyecto de fin de carrera

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Bilbao, junio de 2005



## Resumen

Esto es el resumen. Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionanteresumen. Esto es el resumen. Esto es el emocionante resumen. Esto es el resumen.Esto es el emocionante resumen. Esto es el resumen. Esto es el emocionante resumen. Esto es el resumen.

## Descriptores

Robopsicología, robótica, psicología, informática, ciencia-ficción



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# 1. INTRODUCCIÓN

## 1.1 SECCIÓN

El veloz murciélago hindú comía feliz cardillo y kiwi. La cigüeña tocaba el saxofón detrás del palenque de paja.

Codigo	Nombre	Apellidos
1	Fulanito	P
2	Menganita	Pé
3	Miguel	Campoviejo
4	Kepa	Sakolegi

Cuadro 1.1.: Esto es una tabla

## 1.2 SECCIÓN

### 1.2.1 Subsección

#### ■ Subsubsección



Figura 1.1.: Esto es una figura

Codigo	Nombre	Apellidos
1	Fulanito	P
2	Menganita	Pé
3	Miguel	Campoviejo
4	Kepa	Sakolegi

Cuadro 1.2.: Esto es una tabla

Seudocódigo 1.1: Esto es una tabla

```
1 public void postCreate(GridContext
   context) throws
   GridServiceException
2 {
3     // Create Service Data Element
4     serviceData = this.getServiceDataSet
       ().create("MathData");
5
6     // Set the value of the SDE to a
       MathDataType instance
7     mathData = new MathDataType();
8     serviceData.setValue(mathData);
9
10    // Set intial values of
       MathServiceData
11    mathData.setLastOp("NONE");
12    mathData.setNumOps(0);
13
14    // Add SDE to Service Data Set
15    this.getServiceDataSet().add(
       serviceData);
16 }
```

## **2. OBJETIVOS**

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### **3. CONCLUSIONES**

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## A. ACRÓNIMOS

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## B. LICENCIA

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Version 2, June 1991

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- [1] Miguel L. Bote-Lorenzo, Yannis A. Dimitriadis, and Eduardo Gómez-Sánchez. Grid Characteristics and Uses: a Grid Definition. In *First European Across Grids Conference*, 2003.
- [2] I. Foster, C. Kesselman, J.Nick, and S. Tuecke. Grid Services for Distributed System Integration. *Computer*, 35(6), 2002.
- [3] I. Foster, C. Kesselman, J.Nick, and S. Tuecke. The Physiology of the Grid: An Open Grid Services Architecture for Distributed Systems Integration. Technical report, Open Grid Service Infrastructure WG, Global Grid Forum, junio 2002.
- [4] I. Foster, C. Kesselman, and S. Tuecke. The Anatomy of the Grid: Enabling Scalable Virtual Organizations. *International J. Supercomputer Applications*, 15(3), 2001.
- [5] Ian Foster and Carl Kesselman, editors. *The Grid: Blueprint for a New Computing Infrastructure*. Morgan Kaufmann, 1999.
- [6] Maciej Malawsky, Marian Bubak, and Katarzyna Zajac. Integration of the crossgrid services into the ogsa model. Documento interno del proyecto CrossGrid.
- [7] Jesús Marco. Grids y e-Ciencia. *Boletín de la RedIRIS*, (61):16–22, septiembre 2002.
- [8] S. Tuecke, K. Czajkowski, I. Foster, J. Frey, S. Graham, and C. Kesselman. Grid Service Specification (draft 4). Technical report, Open Grid Service Infrastructure WG, Global Grid Forum, octubre 2002.



## BIBLIOGRAFÍA (OTRAS FUENTES)

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- [9] CrossGrid Project [online]. URL: <http://www.eu-crossgrid.org/>.
- [10] DataGrid Project [online]. URL: <http://www.eu-datagrid.org/>.
- [11] Géant [online]. URL: <http://www.dante.net/geant/>.
- [12] The Global Grid Forum [online]. URL: <http://www.ggf.org/>.
- [13] The Globus Project [online]. URL: <http://www.globus.org/>.
- [14] Globus Toolkit 3.0 Alpha Release [online]. URL: <http://www.globus.org/ogsa/releases/alpha/>.
- [15] SETI@Home [online]. URL: <http://setiathome.ssl.berkeley.edu/>.
- [16] SOAP Version 1.2 Part 1: Messaging Framework [online]. diciembre 2002. URL: <http://www.w3.org/TR/soap12-part1/>.
- [17] The Globus Toolkit 3 Programmer's Tutorial [online]. URL: <http://www.casa-sotomayor.net/gt3-tutorial/>.
- [18] Web Services Description Language (WSDL) 1.1 [online]. marzo 2001. URL: <http://www.w3.org/TR/wsdl>.



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