*Logic Specification Template*

|  |  |  |  |
| --- | --- | --- | --- |
| **Student** | José González Ayerdi | **Program #** | 4 |

|  |  |
| --- | --- |
| **Class Name** | DistribucionT.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 1 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | Main |

|  |  |
| --- | --- |
| **Parameters** | String: args[] |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
|  |
| Llamada al método leer(x, dof) |
| p ← integrar(x, i, dof) |
| i.setResultado(p) |
| Llamada al método desplegar(i) |
|  |
|  |
|  |
|  |
|  |

|  |  |
| --- | --- |
| **Class Name** | DistribucionT.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 1 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | leer |

|  |  |
| --- | --- |
| **Parameters** |  |
|  |  |
|  |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| Hacer: | | |
| Desplegar: “Ingresar límite superior para la integral:” | | |
| x ← Input | | |
| Si x < 0 | | |
| Desplegar: “Debe ser mayor o igual a cero” | | |
| Mientras x < 0 | | |
| Hacer: | | |
| Desplegar: “Ingresar grados de libertad:” | | |
| dof ← Input | | |
| Si x < 0 o bien es decimal | | |
| Desplegar: “Debe ser entero, mayor o igual a cero” | | |
| Mientras x < 0 | | |
|  | | |
| **Class Name** | | DistribucionT.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 1 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | integrar |

|  |  |
| --- | --- |
| **Parameters** | Integral: i |
|  | Entero: num\_seg |
|  |  |

|  |
| --- |
| Hacer: |
| Res1 ← i.integrar(x, dof, num\_seg) |
| Res2 ← i.integrar(x, dof, 2 \* num\_seg) |
| Si abs(Res1 – Res2) >E |
| num\_seg ← num\_seg \* 2 |
| Mientras abs(Res1 – Res2) > E |
| regresar Res2 |

|  |  |
| --- | --- |
| **Class Name** | DistribucionT.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 1 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | desplegar |

|  |  |
| --- | --- |
| **Parameters** | Integral: i |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
| Desplegar: “x = ” + x |
| Desplegar: “dof = ” + dof |
| Desplegar: “p = ” + i.resultado() |

|  |  |
| --- | --- |
| **Class Name** | Integral.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 2 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | integrar |

|  |  |
| --- | --- |
| **Parameters** | Double: x |
|  | Double: dof |
|  | Entero: num\_seg |
|  | Gamma: g |
|  |  |

|  |
| --- |
| Res ← 0 |
| segundoTermino ← g.calcularGamma( ( (dof + 1)/2 ) ) / ( sqrt(dof \* PI) \* g.calcularGamma(dof/2) ) |
| W ← x/num\_seg |
| Desde i = 0 hasta i = num\_seg |
| x ← x \* i |
| Interno ← 1 + pow(Xi, 2)/dof |
| primerTermino ← pow(Interno, - (dof + 1)/2 ) |
| F ← primerTermino \* segundoTermino |
| Si i = 0 ó i = num\_seg |
| M ← 1 |
| Si no y si i MOD 2 = 0 |
| M ← 2 |
| Si no y si i MOD 2 distinto de 0 |
| M ← 4 |
| Res ← Res + w/3 \* M \* F |
| Regresar Res |

|  |  |
| --- | --- |
| **Class Name** | Gamma.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 3 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | calcularGamma |

|  |  |
| --- | --- |
| **Parameters** | Entero: dof |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
| Si dof es entero |
| gamma ← gammaEntero(dof) |
| Si no |
| gamma ← gammaDecimal(dof) |
|  |
| Regresar gamma |

|  |  |
| --- | --- |
| **Class Name** | Gamma.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 3 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | gammaEntero |

|  |  |
| --- | --- |
| **Parameters** | Entero: dof |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
| Desde i = 0 hasta (dof – 1) |
| fact ← fact\* i |
| Regresar fact |

|  |  |
| --- | --- |
| **Class Name** | Gamma.java |

|  |  |
| --- | --- |
| **Design** | OST de la página 1 |
| **References** | FST de la página 3 |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Method Name** | gammaDecimal |

|  |  |
| --- | --- |
| **Parameters** | Entero: dof |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
|  |
| Si dof = ½ |
| Regresa sqrt(PI) |
| Si no |
| Regresa (Dof – 1) \* gammaDecimal(Dof - 1) |
|  |
|  |
|  |
|  |