#### Design Review Checklist Template

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| Student | María Paula Forero Cano | Date | 03/03/2013 |
| Program | SimpsonRuleInv | Program # | 6 |
| Instructor | Luis Benavides | Language | Java |

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| --- | --- |
| Purpose | To guide you in conducting an effective design review |
| General | * Review the entire program for each checklist category; do not attempt to review for more than one category at a time! * As you complete each review step, check off that item in the box at the right. * Complete the checklist for one program or program unit before reviewing the next. |

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| Complete | * El diseño debe contener una clase que escuche eventos y muestre las respectivas salidas del programa. * El diseño debe contemplar todas las funcionalidades planteadas en el documento de requerimientos. * El diseño debe representar el problema en su totalidad, puede contener algún conjunto de clases tipo Util. * El diseño debe contener una clase controlador. |  |  |  |  |
| Límites de responsabilidad de las clases | * Que las interfaces tengan bien definidos los argumentos de los métodos (de manera muy genérica) para facilitar la reutilización. * Las clases deben tener bien definidas sus responsabilidades y ocultar detalles de su implementación para otras clases. * Verificar que los argumentos de los métodos sean factorizados en objetos evitando que el método tenga grandes cantidades de argumentos. |  |  |  |  |
| Manejo de excepciones | * Deben validar el formato de las entradas que disparan la ejecución. * Deben ser claramente definidas y estar acorde a la funcionalidad que se está ejecutando, no pueden ser genéricas. * Deben ser clasificadas y no todas las excepciones generan un mensaje para el usuario. |  |  |  |  |
| Creación de clases | * Evitar la generación de múltiples instancias, centralizando la instanciación en una clase que se responsabilice de eso. |  |  |  |  |
| Encapsulamiento | * Guiarse por el estándar JavaBean el cual mantiene ocultos atributos de la clases y sólo los hace visibles a través de sus métodos Getters y Setters. * No exponer como públicos métodos que sirvan para el propósito exclusivo de la clase propietaria. * Agrupar clases en paquetes que representen grupos de responsabilidades. |  |  |  |  |
| Estructuras de datos | * Para almacenar y leer datos rápidamente utilizar Maps y LinkedList. * Para almacenar y leer datos ordenados por algún criterio utilizar TreeSet. |  |  |  |  |

**Code Review Checklist Template**

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| Student | María Paula Forero Cano | Date | 03/03/2013 |
| Program | SimpsonRuleInvInv | Program # | 6 |
| Instructor | Luis Benavides | Language | Java |

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| --- | --- |
| Purpose | To guide you in conducting an effective code review |
| General | * Review the entire program for each checklist category; do not attempt to review for more than one category at a time! * As you complete each review step, check off that item in the box at the right. * Complete the checklist for one program or program unit before reviewing the next. |

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| Completo | Todas las entidades del diseño han sido representadas en el código. |  |  |  |  |
| Condiciones | Al evaluar condiciones en un bloque if, evitar poner dentro del bloque un número muy extenso de instrucciones. En caso tal de que el bloque sea demasiado extenso, debe invertirse la condición del if, hacer un return dentro del if y ubicar el bloque de instrucciones después de la ejecución del bloque if. |  |  |  |  |
| Ciclos | Utilizar la sentencia continue y break de manera adecuada, ya que puede evitarse la ejecución del bloque de instrucciones completo dada una condición. |  |  |  |  |
| Recursividad | Analizar qué tan complejo es el árbol de recursividad de una función y hacer lo posible por optimizarlo, además de definir los parámetros de finalización. |  |  |  |  |
| Manejo de cadenas | * Evitar el uso de objetos String a la hora de realizar appends, ya que dichos objetos son inmutables y exigen un consumo elevado de memoria. * Cuando se usen objetos como StringBuilder o StringBuffer (en caso de aplicaciones multi thread) para realizar appends, forzar siempre al objeto para que sea seleccionable para el garbage collector. |  |  |  |  |
| Liberación de recursos | Cuando se manejen conexiones a una base de datos o se tenga abierto algún stream que permita leer o escribir bytes, se deben liberar en un bloque finally. |  |  |  |  |
| Referencias de objetos | A la hora de realizar referencias sobre objetos asegurarse de que es adecuado afectar a todas las variables de referencia que apuntan a ese objeto, de lo contrario debe realizarse un clone de ese objeto o, en el caso de los parámetros de un método, una copia en el stack actual. |  |  |  |  |

PSP Time Recording Log

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| Student | María Paula Forero Cano | Date | 02/02/2013 |
| Program | SimpsonRuleInvInv | Program # | 6 |
| Instructor | Luis Benavides | Language | Java |

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| **Project** | **Phase** | **Start Date and Time** | **Int. Time** | **Stop Date and Time** | **Delta**  **Time** | **Comments** |
| Change counter | Design | 07/04 10:30 | 40 | 11:57 |  |  |
|  | Design Review | 3:30 |  | 4:17 |  |  |
|  | Design Inspection | 4:17 |  | 4:40 |  |  |
|  | Code |  |  |  |  |  |
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Size Estimating Template

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| --- | --- | --- | --- |
| Student | María Paula Forero Cano | Date | 03/03/2013 |
| Program | SimpsonRuleInvInv | Program # | 6 |
| Instructor | Luis Benavides | Language | Java |

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|  |  | Estimated | | | | | | | | | | | |
| Base Parts |  | Base | |  | Deleted | |  | Modified | | |  | Added | |
|  |  |  | |  |  | |  |  | | |  |  | |
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|  |  |  | |  |  | |  |  | | |  |  | |
| Total | B | | 0 | D | | 0 | M | | 0 | **BA** | | | 0 |

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|  |  | Actual | | | | | | | | | | |
| Base Parts |  | Base | |  | Deleted | |  | Modified | |  | Added | |
| Calculator |  | 88 | |  | 1 | |  | 5 | |  | 25 | |
| ComplexHandler |  | 52 | |  |  | |  |  | |  |  | |
| Controller |  | 13 | |  |  | |  |  | |  |  | |
| NumberHandler |  | 5 | |  |  | |  |  | |  |  | |
| Total |  | | 158 |  | | 1 |  | | 5 |  | | 25 |

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|  |  | Estimated | | | | | | | |  | Actual | | |
| Parts Additions |  | Type |  | Items |  | Rel. Size | |  | Size\* |  | Size\* |  | Items |
|  |  |  |  |  |  |  | |  |  |  |  |  |  |
| Calculator |  | Logic |  | 6 |  | L | |  | 158 |  | 25 |  | 1 |
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| Total |  |  |  |  |  |  | PA | | 158 |  | 25 |  |  |

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| --- | --- | --- | --- | --- | --- |
|  | |  | Estimated |  | Actual |
| Reused Parts | |  | Size |  | Size |
|  | |  |  |  |  |
| Controller | |  | 12 |  |  |
| ComplexHandler | |  | 45 |  |  |
| NumberHandler | |  | 5 |  |  |
|  | |  |  |  |  |
|  | |  |  |  |  |
|  | |  |  |  |  |
| Total | R | | 62 |  |  |

**(continued)**

Size Estimating Template (continued)

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| Student | María Paula Forero Cano | Program | Simpsom  RuleInv |

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| PROBE Calculation Worksheet (Added and Modified) |  | Size |  | Time |
| Added size (A): A = BA+PA |  | 158 |  |  |
| Estimated Proxy Size (E): E = BA+PA+M |  | 158 |  |  |
| PROBE estimating basis used: (A, B, C, or D) |  | C |  | C |
| Correlation: (R2) |  | -------------- |  |  |
| Regression Parameters: β0 Size and Time |  | 0 |  | 0 |
| Regression Parameters: β1 Size and Time |  | 0,408 |  | 0,039 |
| Projected Added and Modified Size (P): P = β0size + β1size\*E |  | 64,43 |  |  |
| Estimated Total Size (T): T = P + B - D - M + R |  | 126 |  |  |
| Estimated Total New Reusable (NR): sum of \* items |  | 0 |  |  |
| Estimated Total Development Time: Time = β0time + β1time\*E |  |  |  | 6,30 |
| Prediction Range: Range |  | N.A. |  |  |
| Upper Prediction Interval: UPI = P + Range |  | 14,22 |  | 11,11 |
| Lower Prediction Interval: LPI = P – Range |  | 12,5 |  | 6,8 |
| Prediction Interval Percent: |  | N.A |  | N.A |

PSP2.1 Project Plan Summary

|  |  |  |  |
| --- | --- | --- | --- |
| Student | María Paula Forero Cano Echeverri | Date | 01/03/2013 |
| Program | X Limit Integration Calculator | Program # | 6 |
| Instructor | Luis Daniel Benavides | Language | Java |

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| **Summary** | | **Plan** | | |  | **Actual** | | |  | **To Date** | | |
| Size/Hour | | 20 | | |  | 34,6 | | |  | 54,6 | | |
| Planned Time | | 6,3 | | |  |  | | |  | 6,3 | | |
| Actual Time | |  | | |  | 5,06 | | |  | 5,06 | | |
| CPI (Cost-Performance Index) | |  | | |  |  | | |  | 1,24 | | |
|  | |  | | |  |  | | |  | (Planned/Actual) | | |
| % Reuse | | 28 | | |  | 0 | | |  | 28 | | |
| % New Reusable | | 0 | | |  | 0 | | |  | 0 | | |
| Test Defects/KLOC or equivalent | | 12,3341835 | | |  | 13,33 | | |  | 25,6641835 | | |
| Total Defects/KLOC or equivalent | | 13,018987 | | |  | 17,14 | | |  | 30,158987 | | |
| Yield % | | 5,25999028 | | |  | 66,66 | | |  | 71,9199903 | | |
| ***% Appraisal COQ*** | | 4,60 | | |  | 16,40 | | |  | 21 | | |
| ***% Failure COQ*** | | 4,44 | | |  | 6,52 | | |  | 10,96 | | |
| ***COQ A/F Ratio*** | | 1,03 | | |  | 2,51 | | |  | 3,54 | | |
| ***PQI*** | | 21,03 | | |  | 268,39 | | |  | 289,42 | | |
|  | |  | | |  |  | | |  |  | | |
| **Program Size** | | **Plan** | | |  | **Actual** | | |  | **To Date** | | |
| Base (B) | | 0 | | |  | 158 | | |  |  | | |
|  | | (Measured) | | |  | (Measured) | | |  |  | | |
| Deleted (D) | | 0 | | |  | 1 | | |  |  | | |
|  | | (Estimated) | | |  | (Counted) | | |  |  | | |
| Modified (M) | | 0 | | |  | 5 | | |  |  | | |
|  | | (Estimated) | | |  | (Counted) | | |  |  | | |
| Added (A) | 158 | | | |  | 25 | | |  |  | | |
|  | (A+M − M) | | | |  | (T − B + D − R) | | |  |  | | |
| Reused (R) | 62 | | | |  | 0 | | |  | 62 | | |
|  | (Estimated) | | | |  | (Counted) | | |  |  | | |
| Added and Modified (A+M) | 158 | | | |  | 25 | | |  | 183 | | |
|  | (Projected) | | | |  | (A + M) | | |  |  | | |
| Total Size (T) | 220 | | | |  | 175 | | |  | 395 | | |
|  | (A+M + B − M − D + R) | | | |  | (Measured) | | |  |  | | |
| Total New Reusable | 0 | | | |  | 0 | | |  | 0 | | |
|  |  | | | |  |  | | |  |  | | |
| Estimated Proxy Size (E) | 158 | | | |  |  | | |  |  | | |
|  | |  | | |  |  | | |  |  | | |
| ***Upper Prediction Interval (70%)*** | |  | | |  |  | | |  |  | | |
| ***Lower Prediction Interval (70%)*** | |  | | |  |  | | |  |  | | |
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**PSP2.1 Project Plan Summary (continued)**

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| --- | --- | --- | --- |
| Student | María Paula Forero Cano Echeverri | Program # | 6 |

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| **Time in Phase (min.)** | **Plan** |  | | **Actual** | | | | |  | | **To Date** | | |  | | **To Date %** | |
| Planning | 0,59598 |  | | 2,15 | | | | |  | | 2,74598 | | |  | | 24,17 | |
| Design | 0,12789 |  | | 0,25 | | | | |  | | 0,37789 | | |  | | 3,33 | |
| Design Review | 0,01701 |  | | 0,5 | | | | |  | | 0,51701 | | |  | | 4,55 | |
| Code | 2,15145 |  | | 1 | | | | |  | | 3,15145 | | |  | | 27,74 | |
| Code Review | 0,38493 |  | | 0,33 | | | | |  | | 0,71493 | | |  | | 6,29 | |
| Compile | 0 |  | |  | | | | |  | | 0 | | |  | | 0 | |
| Test | 0,28413 |  | | 0,33 | | | | |  | | 0,61413 | | |  | | 5,41 | |
| Postmortem | 2,73798 |  | | 0,5 | | | | |  | | 3,23798 | | |  | | 28,50 | |
| Total | 6,3 |  | | 5,06 | | | | |  | | 11,36 | | |  | | 24,17 | |
| ***Total Time UPI (70%)*** |  |  | |  | | | | |  | |  | | |  | |  | |
| ***Total Time LPI (70%)*** |  |  | |  | | | | |  | |  | | |  | |  | |
|  |  | |  | |  | | |  | |  | | | | |  | |  |
| **Defects Injected** | **Plan** | |  | | **Actual** | | |  | | **To Date** | | | | |  | | **To Date %** |
| Planning |  | |  | |  | | |  | |  | | | | |  | |  |
| Design |  | |  | |  | | |  | |  | | | | |  | |  |
| Design Review |  | |  | |  | | |  | |  | | | | |  | |  |
| Code | 2,057 | |  | | 3 | | |  | | 8,057 | | | | |  | | 100 |
| Code Review |  | |  | |  | | |  | |  | | | | |  | |  |
| Compile |  | |  | |  | | |  | |  | | | | |  | |  |
| Test |  | |  | |  | | |  | |  | | | | |  | |  |
| Total Development | 2,057 | |  | | 3 | | |  | | 8,057 | | | | |  | | 100 |
|  |  | |  | |  | | |  | |  | | | | |  | |  |
| **Defects Removed** | **Plan** | |  | | **Actual** | | |  | | **To Date** | | | | |  | | **To Date %** |
| Planning | 0 | |  | |  | | |  | |  | | | | |  | |  |
| Design | 0 | |  | |  | | |  | |  | | | | |  | |  |
| Design Review | 0 | |  | |  | | |  | |  | | | | |  | |  |
| Code | 0 | |  | |  | | |  | |  | | | | |  | |  |
| Code Review | 0,108198 | |  | | 2 | | |  | | 2,108198 | | | | |  | | 41,6887087 |
| Compile | 0 | |  | |  | | |  | |  | | | | |  | |  |
| Test | 1,948801 | |  | | 1 | | |  | | 2,948801 | | | | |  | | 58,3112715 |
| Total Development | 2,057 | |  | | 3 | | |  | | 5,057 | | | | |  | | 100 |
| After Development |  | |  | |  | | |  | |  | | | | |  | |  |
|  |  | | | | |  |  | | | | |  |  | | | | |
| **Defect Removal Efficiency** | **Plan** | | | | |  | **Actual** | | | | |  | **To Date** | | | | |
| Defects/Hour − Design Review | 0 | | | | |  | 0 | | | | |  | 0 | | | | |
| Defects/Hour − Code Review | 0,28108539 | | | | |  | 6,06060606 | | | | |  | 6,34169145 | | | | |
| Defects/Hour − Compile | 0 | | | | |  | 0 | | | | |  | 0 | | | | |
| Defects/Hour − Test | 6,85883856 | | | | |  | 3,03030303 | | | | |  | 9,88914159 | | | | |
| DRL (DLDR/UT) | 0 | | | | |  | 0 | | | | |  | 0 | | | | |
| DRL (Code Review/UT) | 0,04098149 | | | | |  | 2 | | | | |  | 2,04098149 | | | | |
| DRL (Compile/UT) | 0 | | | | |  | 0 | | | | |  | 0 | | | | |

PSP Defect Recording Log

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| --- | --- |
| Defect Types |  |
| 10 Documentation | 60 Checking |
| 20 Syntax | 70 Data |
| 30 Build, Package | 80 Function |
| 40 Assignment | 90 System |
| 50 Interface | 100 Environment |

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| --- | --- | --- | --- |
| Student | María Paula Forero Cano | Date | 23/02/2013 |
| Program | SimpsonRuleInv | Program # | 5 |
| Instructor | Luis Benavides | Language | Java |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | | 07/04 |  | 1 |  | 80 |  | Design |  | Design Review |  | 5 |  |  |
| Description: | | | Hacía falta un método que permitiera iterar el árbol de modificaciones del programa | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | | 07/04 |  | 2 |  | 80 |  | Design |  | Design Review |  | 5 |  |  |
| Description: | | | Hacían falta dos métodos que permitieran crear el archivo y la estructura de carpetas nueva | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | | 07/04 |  | 3 |  | 80 |  | Design |  | Design  Review |  | 5 |  |  |
| Description: | | | No se especificó un método que permita dar formato JSON al objeto LineCode | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Description: | | |  | | | | | | | | | | | | | |
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|  | | | | | | | | | | | | | | | | |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Description: | | |  | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| Project |  | | Date |  | Number |  | Type |  | Inject |  | Remove |  | Fix Time |  | Fix Ref. |
|  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Description: | | |  | | | | | | | | | | | | | |
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PSP Process Improvement Proposal (PIP)

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| --- | --- | --- | --- |
| Student | María Paula Forero Cano | Date | 03/03/2013 |
| Program | SimpsonRuleInv | Program # | 6 |
| Instructor | Luis Benavides | Language | Java |

|  |
| --- |
| Problem Description |
| Briefly describe the problems that you encountered. |
|  |
| No verifiqué bien si podía reusar partes de mis programas anteriores |
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| Proposal Description |
| Briefly describe the process improvements that you propose. |
|  |
| Verificar si los programas anteriores tienen partes reusables y usar patrones de diseño que permitan mayor facilidad a la hora de reutilizar |
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| Other Notes and Comments |
| Note any other comments or observations that describe your experiences or improvement ideas. |
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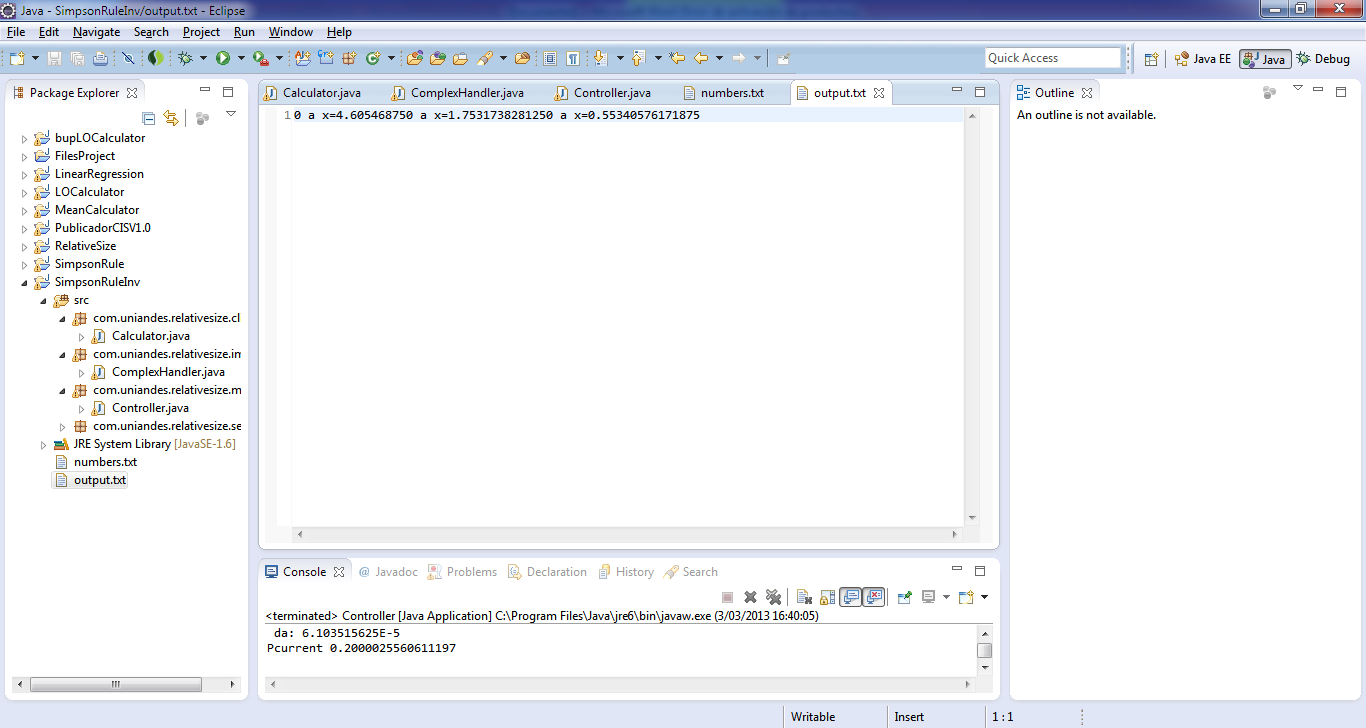
Test Report Template

|  |  |  |  |
| --- | --- | --- | --- |
| Student | María Paula Forero | Date | 03/03/2013 |
| Program | SimpsonRuleInvInv | Program # | 6 |
| Instructor | Luis Daniel Benavides | Language | Java |

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| --- | --- |
| Test Name/Number | Test1/1 |
| Test Objective | Calcular el valor de x usando la regla de Simpson |
|  |  |
|  |  |
| Test Description | Tomar el valor de p y el número que representa los grados de libertad |
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|  |  |
| Test Conditions | Valores: P=0,20 Dof= 6 |
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|  |  |
|  |  |
| Expected Results | X= 0.55338 |
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|  |  |
|  |  |
| Actual Results | X= 0.55340576171875 |
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| Test Name/Number | Test2/3 |
| Test Objective | Calcular el valor de x usando la regla de Simpson |
|  |  |
| Test Description |  |
|  | Tomar el valor de p y el número que representa los grados de libertad |
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|  |  |
| Test Conditions | Valores: P=0.45 Dof= 15 |
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|  |  |
| Expected Results | X= 1.75305 |
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|  |  |
|  |  |
| Actual Results | X= 1.7531738281250 |
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| --- | --- |
| Test Name/Number | Test3/3 |
| Test Objective | Calcular el valor de x usando la regla de Simpson |
|  |  |
|  |  |
| Test Description | Tomar el valor de p y el número que representa los grados de libertad |
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|  |  |
| Test Conditions | Valores: P= 0.495 Dof= 4 |
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|  |  |
|  |  |
|  |  |
| Expected Results | P= 4.60409 |
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|  |  |
|  |  |
| Actual Results | P= 4.605468750 |
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Test Results



CASOS DE USO

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| --- | --- | --- | --- | --- |
| **Scenario Number** | **1** | **User Objective** | Calcular el valor de x usando la regla de Simpson | |
| **Scenario Objective** | | Describir el flujo de ejecución normal | | |
| **Source** | **Step** | **Action** | | **Comments** |
| Sistema | 1 | El sistema solicita la selección del archivo que contiene los números | |  |
| Usuario | 2 | El usuario selecciona el archivo correspondiente | | Se verifica si los números están en el formato correcto |
| Sistema | 3 | El sistema realiza los cálculos de x | |  |
| Sistema | 4 | El sistema muestra el resultado de x dentro de un archivo .txt | |  |
| Usuario | 5 | El usuario abre el archivo y analiza los resultados | |  |