*Functional Specification Template*

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| **Student** | | Erick Francisco González Martínez | | | **Program #** | 4 |
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| **Class Name** | | | OutputHandler | | | | |
| **Parent Class** | | |  | | | | |
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| **Attributes** | | | | | | | |
|  | **Declaration** | | | **Description** | | | |
|  | vector<double> results; | | | The results to be displayed | | | |
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| **Items** | | | | | | | |
|  | **Declaration** | | | **Description** | | | |
|  | inline double round(double number) | | | Rounds the results in the format rounded to 5 decimals | | | |
|  | string convert(double x) | | | Displays the results in the format of a string | | | |
|  | void OutputHandler::display() | | | Displays the results in the format required | | | |

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| **Class Name** | | InputReader | |
| **Parent Class** | |  | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
|  | Int x | | Stores the x value |
|  | Int dof | | Stores the degrees of freedom from the user |
|  | vector<double> data | | Stores the data from the file |
|  | Double pi = 3.14159265359; | | Stores the value of pi in a double. |
|  | Double maxError = 0.0000001 | | Stores the maximum Error accepted by the iteration in Simspon |
|  | Double p1,p2; | | Stores the iterations difference between the values; |
|  | Double width | | Stores the length of the rectangles increment of the integral |
|  | Double num\_seg = 10 | | Stores the number of segments into which the integral is divided. |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | InputReader() | | Initializes the vector of results in 0 and the fileName as an empty string. |
|  | InputReader(const InputReader &ir) | | Copies the vector and the name of the file. |
|  | InputReader(vector<double> results) | | Initialization of the vector with values |
|  | void handleInput() | | Reads the line of the filename and stores its |
|  | bool openFile() | | Tries to open the file and returns whether its successful. |
|  | void storeValues() | | Stores the values of the file into the data types in the class. |
|  | Double getDistributionT(double dof, double x) | | Calculate the distribution t. |
|  | Double getDistributionGamma(double num) | | Calculate the gamma distribution |
|  | Double calculateIteration(double x, double dof, double num\_seg) | | Calculate the iteration of the Simspon Rule. |