*Functional Specification Template*

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| **Student** | Erick Francisco González Martínez | **Program #** | 7 |
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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 |
|  | OutputHandler(vector<double> temp):results(temp  {}; | | Initializes the results vector from the temp vector. |
|  | 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 N | | Stores the total value of all the registered rows. |
|  | double xk,yk,wk | | Stores the values of the coefficients given by the program. |
|  | double xi,yi,wi,zi | | Stores the sum of each variable |
|  | double w2i,wx,wy,wz | | Stores the sum of the w variable |
|  | double x2i,xy,xz | | Stores the sum of the x variable |
|  | double y2i,yz | | Stores the sum of the y variable |
|  | double b0,b1,b2,b3 | | Stores the coefficients that will be the result of the reduced matrix |
|  | vector<vector<double> > data | | Stores the rows of data from the file |
|  | vector<vector<double> > mat | | Stores the matrix to find the coefficients |
|  | | | |
| **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. |
|  | void calculateValues() | | Calculate the values of the results of each result in the vector of results. |
|  | Void rrf() | | Calculate the row reduced echelon form of the matrix to find the coefficients. |