*Functional Specification Template*

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| **Student** | | Gerardo Aldair Ponce Gomez | | | **Program #** | 5 |
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| **Class Name** | | | Main | | | | |
| **Parent Class** | | | - | | | | |
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| **Attributes** | | | | | | | |
|  | **Declaration** | | | **Description** | | | |
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| **Items** | | | | | | | |
|  | **Declaration** | | | **Description** | | | |
|  | main | | | Llama a las distintas clases con las cual se realizan todos los cálculos y se imprimen los resultados | | | |
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| **Class Name** | | Calcular | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
|  | X: float | | Valor x que se obtiene al hacer las sumatorias de x |
|  | Y: float | | Valor y que se obtiene al hacer las sumatoria de y |
|  | XY : float | | Valor que se obtiene al multiplicar xi por yi |
|  | Xx: float | | Valor al cuadrado de x |
|  | Yy: float | | Valor al cuadrado de y |
|  | Correlation: float | | Valor de la correlación calculada |
|  | B0: float | | Valor Beta 0 calculado en la regresión |
|  | B1: float | | Valor beta1 calculado en la regresión |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | float getX() | | Retorna el valor calculado de x |
|  | Float getY() | | Retorna el valor calculado de y |
|  | Float getCorrelation() | | Retorna el valor de la correlación |
|  | Float getB0() | | Retorna el valor de B0 |
|  | Float getB1() | | Retorna el valor de B1 |
|  | Void sumatorias(NumX: vector<float>, NumY : vector<float>, iN: int) | | Realiza las Sumatorias para obtener las variables necesarias para el cálculo de la correlación |
|  | Void correlacion (NumX: vector<float>, NumY : vector<float>, iN: int) | | Realiza el calcula el cálculo de la correlación |
|  | Void regresion(NumX: vector<float>, NumY : vector<float>, iN: int) | | Calcula el valor de la regresión |
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| **Class Name** | | CalcularP | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | Float calculagamma(x: float) | | Calcula el valor de gamma |
|  | Float calculaValor(x: float, dof, float, num\_seg dof) | | calcula el valor de la distribución y obtiene el valor de la integral por el método de simpson |
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| **Class Name** | | Imprimir | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | Void imprimeResultados(N: int, K: float , R: float , RR: float, B0: float , B1: floaT, YK: float, signi: float, rango: float, LS: float, LI: float) | | Imprime los valores en el formato estipulado |
|  | Void imprimenoexiste() | | imprime el mensaje de archivo inexistente |
|  | void imprimeErrorpDof() | | imprime mensaje de datos inválidos |
|  | void imprimeMayor0() | | imprime mensaje de error en caso de que los datos no sean mayores o iguales a 0 |
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| **Class Name** | | Lectora | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
|  | Archive: fstream | | Contiene el archive |
|  | xK: float | | Almacena el valor de la primera linea del archivo |
|  | Renglon: int | | Cuenta el número de renglones |
|  | Totals: int | | Cuenta el total de datos en el archivo |
|  | Error: int | | Entero que cambia a 1 si uno de los datos es invalido |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | Lectora (nombre: string) | | Constructor que inicializa el archivo |
|  | ~Lectora() | | Destructor que cierra el archivo |
|  | int getxK() | | obtiene el valor de xK |
|  | int getTotales() | | obtiene el valor de la cantidad de datos ingresados |
|  | bool existeArchivo() | | comprueba si existe el archivo |
|  | void vacioArchivo() | | imprime si el archivo esta vacio o manda a imprimir los resultados |
|  | int error0() | | retorna el valor del error |
|  | void Contar (NumX: vector<float>, NumY: vector<float>) | | cuenta y lee los datos del archivo y los almacena |
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| **Class Name** | | Significancia | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | float CalculaX(corre: float, correa2: float, n: float) | | calcula el valor de x para comenzar a calcular la significancia |
|  | float calcuSigni(p: float) | | calcula la significancia |
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| **Class Name** | | Rango | |
| **Parent Class** | | - | |
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| **Attributes** | | | |
|  | **Declaration** | | **Description** |
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| **Items** | | | |
|  | **Declaration** | | **Description** |
|  | float desviacionStandar(N: float, b0: float, b1: float, NumX: vector <float>,NumY: vector <float>) | | calcula la desviación estándar |
|  | float promX(NumX: vector <float>) | | calcula el promedio del vector |
|  | float rango(distT: float, desviacion: float, N: float, xk: float, aveX: float, NumX: vector <float>) | | calcula el rango de un intervalo |
|  | float rangoUP(yk: float, rango: float) | | calcula el Límite superior |
|  | float rangoLP(yk: float, rango: float) | | calcula el Límite Inferior |
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