

## Figure 7-1 – Possible System Entities

Product: <Enumeration Mathematical Library>

Date: <02/23/2016>

Type	Name	Description or Notes
Screen	Website	Our website enumeration.ml for hosting our software
Database	Graphic Base	Our database of mathematical basic graphics
Database	Number Base	Database of important mathematical numbers and formulas
File	Makefile	For compiling and building software
File	num.c	Common number theoretic functions are in this file
File	alg.c	Algebraic number theory structures and functions are located in this file
File	combi.c	Combinatorial structures and functions are located in this file
File	field.c	Field types and operations are located in this file
File	arb.c	Arbitrary precision numbers type and operations are located in this file
File	graphic.c	For Graphics Renderings
File	num.h	Header file for num.c
File	alg.h	Header file for alg.c
File	combi.h	Header file for combi.c
File	field.h	Header file for field.c
File	arb.h	Header file for arb.c
File	graphic.h	Header file for graphic.c
File	math.s	Fast math functions in assembly language
File	operation.s	Fast math operations in assembly language
File	Function.s	Optimized functions in assembly language
File	eml.tar.gz	Standard Archive distribution of software
File	eml.so	Dynamically Linked Library Version
File	eml.a	Statically Linked Library Version
Module	C++ Bindings	Bindings for C++ Programming Language
Module	Python Bindings	Bindings for Python Programming Language
Module	Haskell Bindings	Bindings for Haskell Programming Language
Module	Java Bindings	Bindings for Java Programming Language
Code	Tex Renderer	Tex Renderings
Code	PNG Renderer	PNG Renderings

## Figure 7-2 - Template for Detailed Design for a Screen

**Name:** <Website (enumeration.ml)>

**Type:** Screen

**Purpose:** This screen is needed to meet requirement 1 of Software Distribution

**Description:** Figure <1> shows the layout for this screen. This screen is the first webpage of our website which we intend to use for our software distribution and propagation.

The screen contains the webpage hierarchy.

Layout:

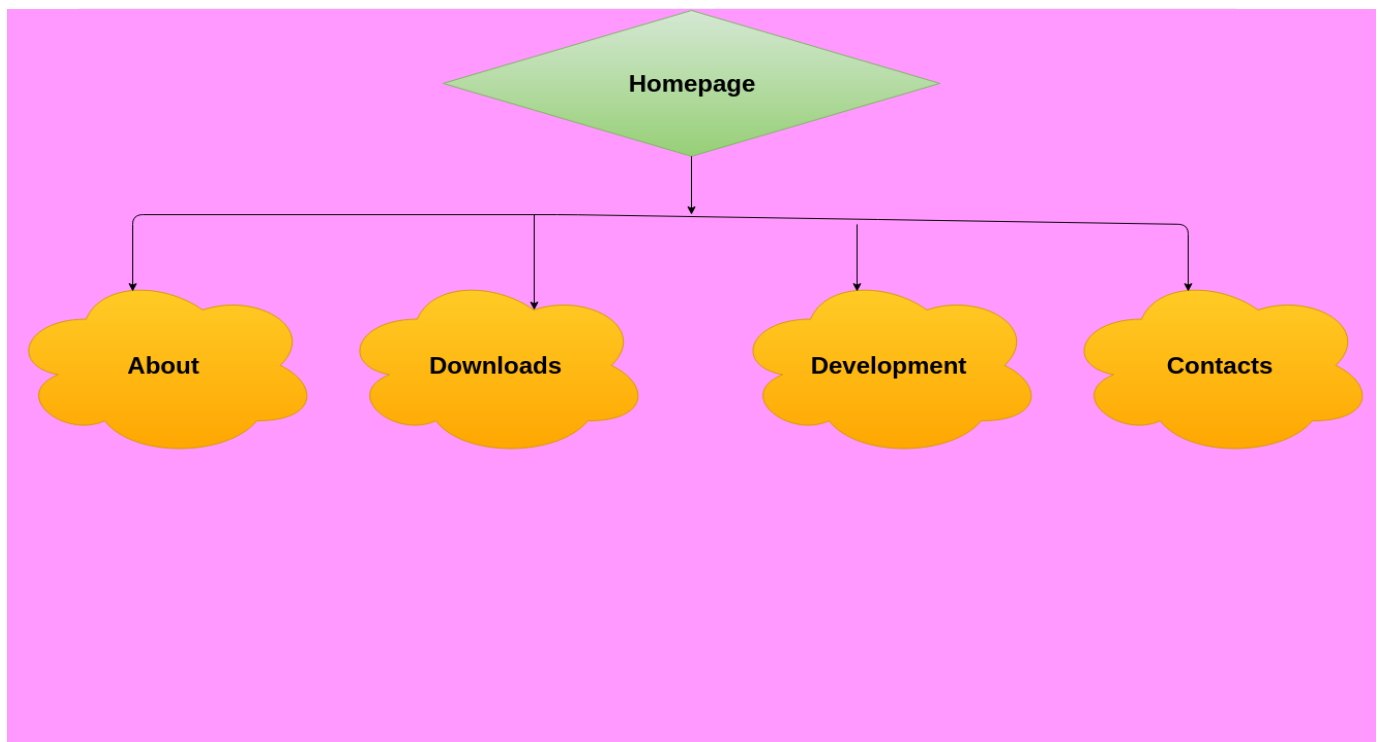


Figure <1> - <Website> Screen

## Figure 7-3 - Template for Detailed Design for a Database Table

**Name:** <Number Base>

**Type:** Database Table

**Purpose:** This table is needed to meet requirement 10.

**Description:** Figure <2> shows the contents for this table. This table contains information about what our database will typically store. One row of this table represents a number important in some mathematical sense.

### Table Contents:

Data Element Name	Data Type	Key	Notes
Pi	arb_double	1	This is number Pi computed upto any precision.
e	arb_double	2	This is number e computed upto any precision.
Euler's Constant	arb_double	3	This is number Euler's constant computed upto any precision.
The Golden ratio	arb_double	4	This is number golden ratio computed upto any precision.
Glaisher–Kinkelin constant A	arb_double	5	This is number Glaisher–Kinkelin constant A computed upto any precision.
i	arb_complex	6	Complex unit upto arbitrary precision
Sqrt (x)	arb_func	7	Arbitrary precision functions
Complex Integrals	arb_integral	8	Arbitrary precision integrals
Prime Sieve	arb_array	9	Array of prime numbers
Field1	arb_field	10	Hilbert fields
pFields	arb_field	11	P-adic Fields

**Figure <2> - <Number Base> Database Table**

## Figure 7-4 - Template for Detailed Design for a Code Function

**Name:** <Tex Renderer>

**Type:** Function

**Purpose:** This function is needed to meet requirement 17.

**Parameters:** The following parameters are used to call this function:

Name	Data Type	Notes
data	Any arb datatype	Structure to be Tex rendered
width	double	Relative width to standard width
height	double	Relative width to standard height

**Return Type:** <int>

**Processing:** Takes a arb datatype data structure and output a Tex file to represent it. Variables width and height are taken into account while generating the Tex output. This program takes call tex-generator open source library.