



# 1 Project

## 1.1 Project Name

The name of our project is “Enumeration Mathematical Library” acronym-ed as EML. Our first stable version is named EML 0.1 alpha release.

## 1.2 Project Abstract

EML or “Enumeration Mathematical Library” will be a fast C++/C library for mathematical computations. It will concentrate in number theory and support from basic number theory to power series, polynomials, p-adic fields, and algebraic and combinatorial number theory.

In addition, EML will provide various low-level routines for fast arithmetic. It will be extensively documented and tested.

We are planning to write it in ANSI C, which will run in many platforms. “Enumeration Mathematical Library” will support :

- Arbitrary Large Integers
- Arbitrary Precision Numbers
- Basic Number Theoretic Functions
- Complex, Quaternions and Higher Fields
- P-adic Fields
- Algebraic Number Theory
- Combinatorial Objects and Functions
- Matrix Algebra

Currently, supported architectures include x86-64. There is also support for parallel programming. The library will support parallel programming by using OpenMP and MPI libraries.

## 1.3 Project Deliverable

By end of winter term, we will have an idea on how to implement EML. Also, we will have wrote some beginning code.

We will deliver a stable working library for our alpha release. We will make our source code available to public as per open source ideology. We will release an archive .zip or .tar of source code. We will also provide a dynamic compiled library as .so file. We will also provide complete documentation and system manual.

## 1.4 Special Resources

We require a computing cluster to properly the implementation of support for parallel programming. Also, a collection of nice previously implemented algorithms for reducing time constraint.

## 1.5 Expertise

This project requires expertise in mathematics and algorithms. It also requires some good knowledge in parallel programming which is yet to acquired by us.

## 2 Team

Name	Role
Mosfiqur Rahman	Project Manager
Debdut Karmakar	Developer

# 3 Timeline

## Team 707 Project EML

