# XX description document

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## 1 Part I of the Project

Introduction to Part I of the Project ...

### 1.1 Problem XX

♠ Consider the model equation

$$\begin{cases} -\nabla \cdot (a(u)\nabla u) = f, & \text{in } \Omega, \\ u = 0, & \text{on } \partial\Omega. \end{cases} \tag{1}$$

- **FDM_Possion.m** Finite difference method for solving Possion equation.
- **FEM_Possion.m** Finite element method for solving Possion equation.

## 2 Part II of the Project

Introduction to Part II of the Project ...

1. Point one
2. Point two
3. Point three

♠ Consider model equations

$$\begin{cases} -\nabla \cdot (a(u)\nabla u) = f, & \text{in } \Omega, \\ u = 0, & \text{on } \partial\Omega. \end{cases} \tag{2}$$

This is the MATLAB code highlighting environment

MATLAB code

```matlab
% Euler method for the ODEs
clear all;  clf
h=0.1; x=0:h:1;
N=length(x)-1;
u(1)=0;
fun=@(t,u) t.^2+t-u;
for n=1:N
    u(n+1)=u(n)+h.*fun(x(n),u(n));
end
ue=-exp(-x)+x.^2-x+1;
plot(x,ue,'b-',x,u,'r+','LineWidth',1)
xlabel('x'), ylabel('u')
```

This is the Python code highlighting environment

Python code

```python
# Fibonacci series up to n
def fib(n):
    a, b = 0, 1
    while a < n:
        print(a, end=' ')
        a, b = b, a+b
    print()
fib(1000)
```