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Assignment 4

Numerical Method for PDE
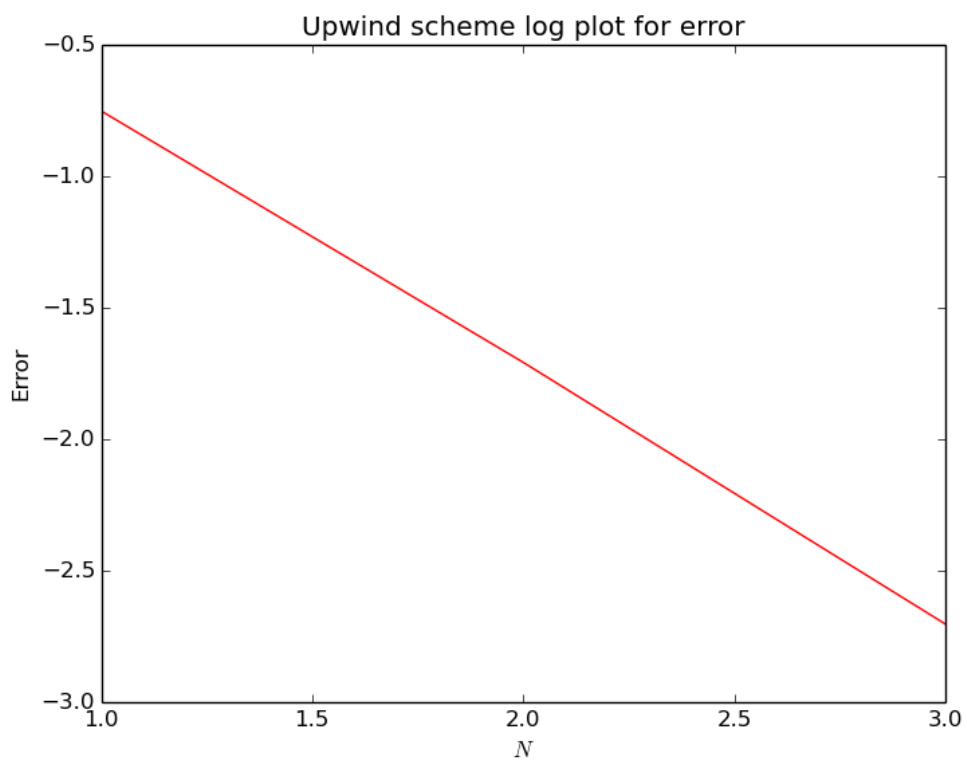
Results:

Error values

1) Upwind Scheme

The Upwind Scheme error for 10 is 0.176679
The Upwind Scheme error for 100 is 0.0195212
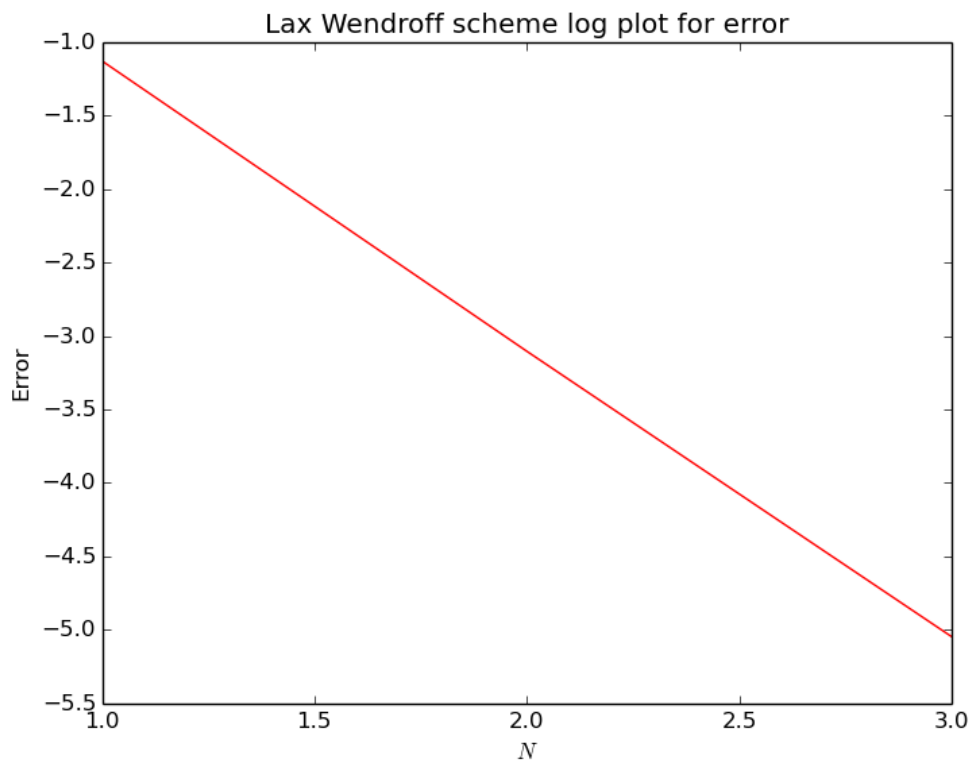The Upwind Scheme error for 1000 is 0.0019724

Upwind scheme log plot for error

2) Lax- Wendroff Scheme

The Lax-Wendroff Scheme error for 1000 is 8.94925e-06
The Lax-Wendroff Scheme error for 10 is 0.0742555
The Lax-Wendroff Scheme error for 100 is 0.000784558
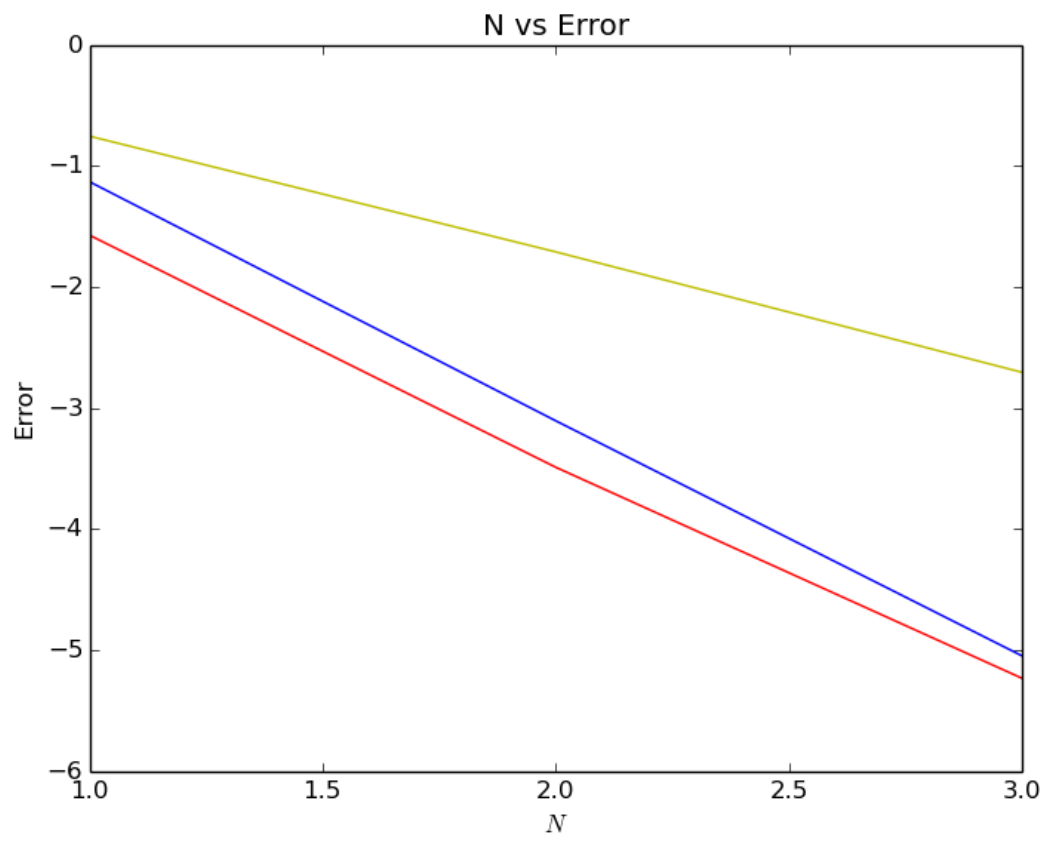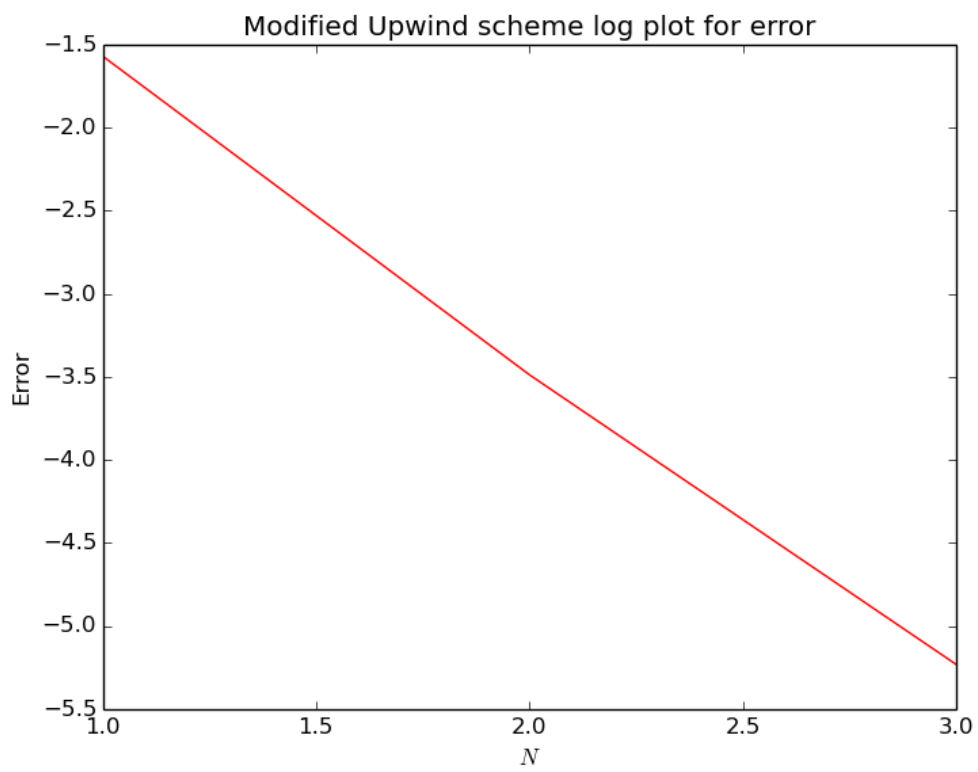

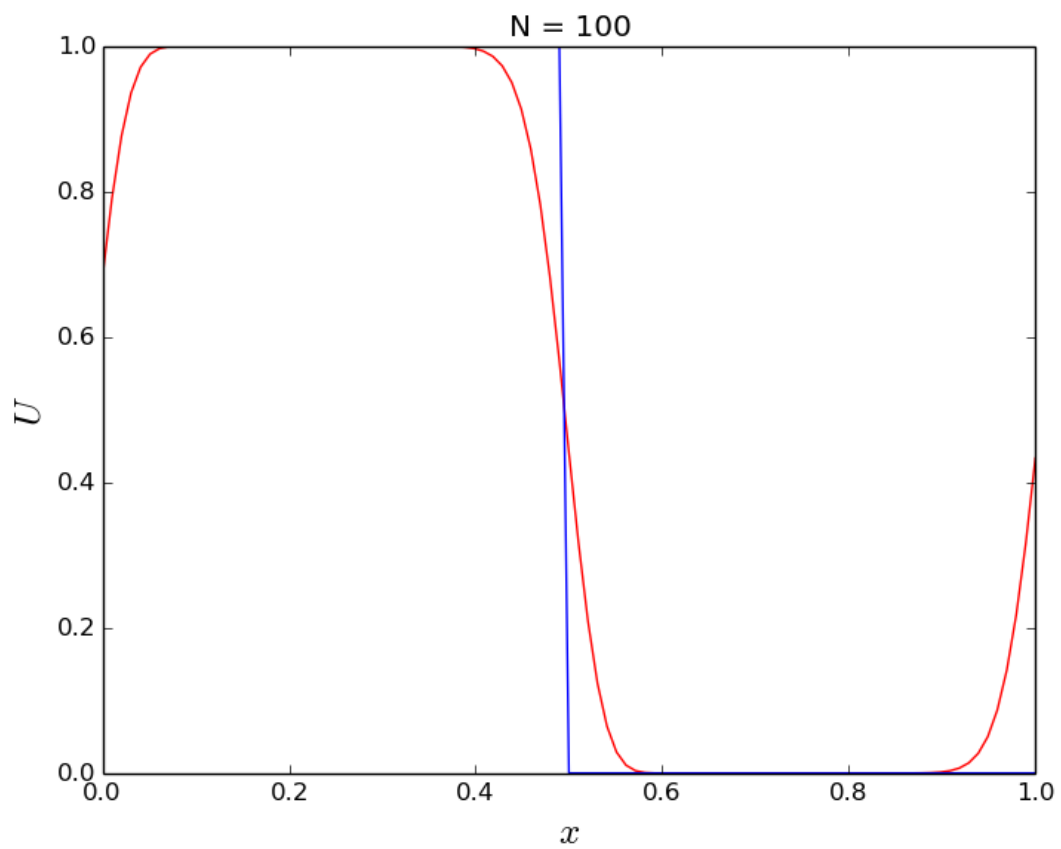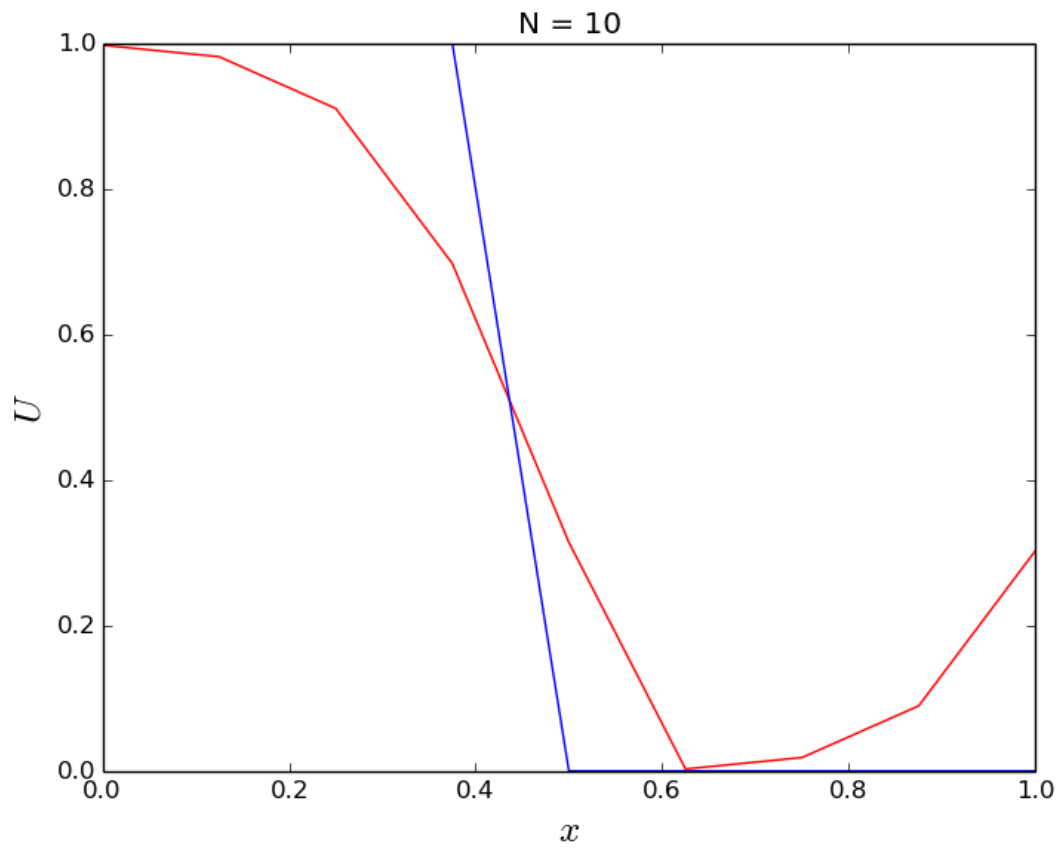Lax Wendroff scheme log plot for error

3) Modified Upwind Scheme

The Upwind Scheme error for 10 is 0.0268606
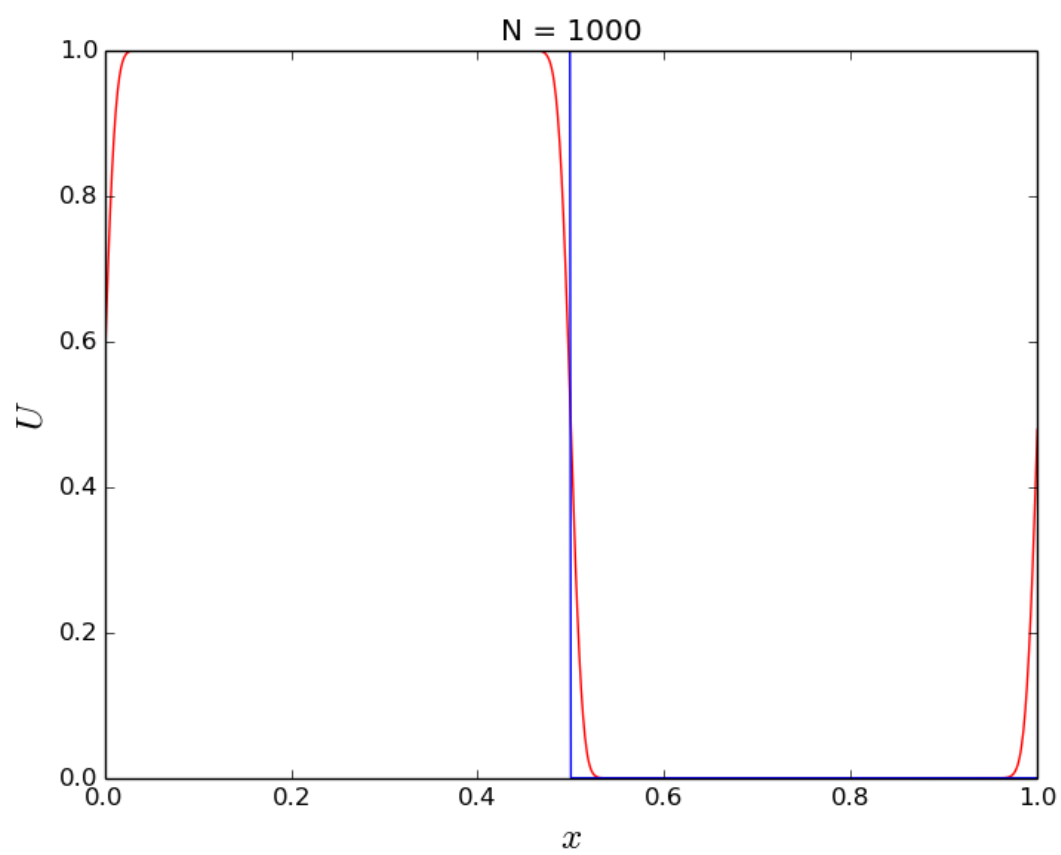The Upwind Scheme error for 100 is 0.000324157
The Upwind Scheme error for 1000 is 5.84126e-06

Modified Upwind scheme log plot for error

N vs Error

2) Discontinuous : Upwind Scheme

N = 10

N = 100

L

N = 1000

Lax-Wendroff Scheme

Lax-WendroffScheme N = 10

Lax-WendroffScheme N = 100

Lax-WendroffScheme N = 1000