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Project B

Bc1-3

Write a computer code to solve

We start by using the   
ADI scheme to discretize the equation

(1)

(2)

Let eq (1) becomes

Let

Thus

(4)

Similarly, eq. 2 becomes

(6)

Substituting j=1 in (3)

Substituting N for j in (3)

Similarly k=1 in (5)

And k=N in (5)

However is not provided and we have

Discretizing the boundary condition

ghost node

For k=N+1 in (5)

Since