Upwind

Set constants and initial conditions

Discretise time and space  
Create 2x2 array to store function values over time

For length of time array

For length of x array

Calculate next value using upwind method

For length of time array

For length of x array

Calculate analytical solution

Plot numerical and analytical solutions at desired time

FTCS

Set constants and initial conditions

Discretise time and space  
Create 2x2 array to store function values over time

For length of time array

For length of x array

Calculate next value using current point in time and adjacent points in space

For length of time array

For length of x array

Calculate analytical solution

Plot numerical and analytical solutions at desired time

Staggered Leapfrog

Set constants and initial conditions

Discretise time and space  
Create 2x2 array to store function values over time

For length of x array

Calculate values for t=2 using upwind method

For length of time array

For length of x array

Calculate next value using adjacent points in space and time

For length of time array

For length of x array

Calculate analytical solution

Plot numerical and analytical solutions at desired time