PLACEMENT PHASE

START

Read dimensions of the board and number of penguins

Generate random board

Set both players score to 0

Set current_player

Can current_player place penguin?

— Yes → Show board

Ask for coordinates

Are coordinates valid?

— No → Inform why coordinates are invalid → Ask for coordinates

— Yes → Place penguin and add a fish to current_player's score

Change current_player

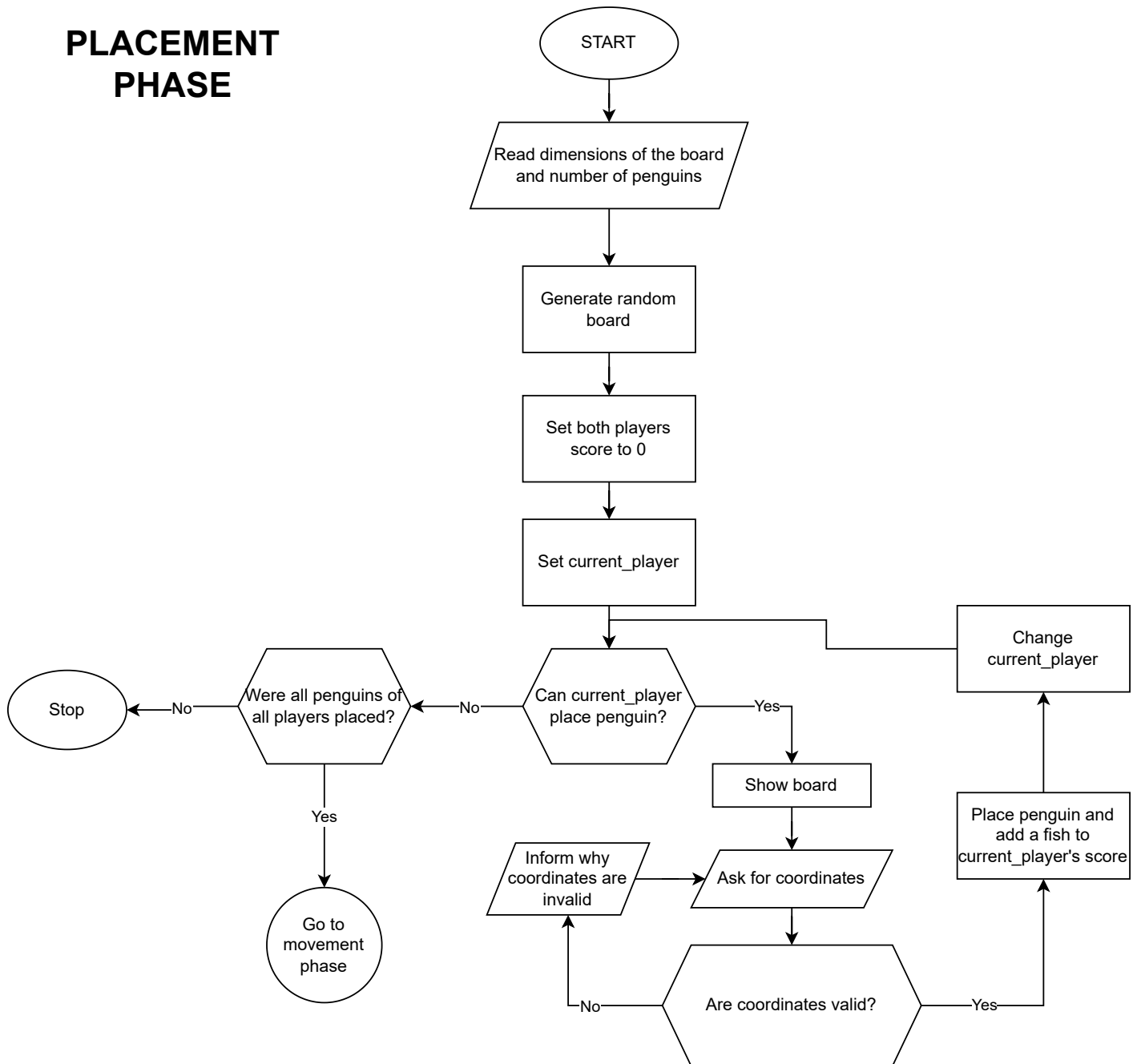Can current_player place penguin? — No → Were all penguins of all players placed?

— No → Stop

— Yes → Go to movement phase

MOVEMENT PHASE

Start

Does any of current_player's penguins have legal move?

— No → **Change current_player**

— Yes → **Show board**

Change current_player →

Does any of current_player's penguins have legal move?

— Yes →

— No → **Show the winner (player with bigger score)** → **Stop**

Show board → **Ask for coordinates of penguin**

Inform about invalid coordinates → Ask for coordinates of penguin

Ask for coordinates of penguin → **Are coordinates valid?**

Are coordinates valid? — No → Inform about invalid coordinates

Are coordinates valid? — Yes → **Ask for new coordinates for this penguin**

Inform why coordinates are invalid → Ask for new coordinates for this penguin

Ask for new coordinates for this penguin → **Are coordinates valid?**

Are coordinates valid? — No → Inform why coordinates are invalid

Are coordinates valid? — Yes → **Move penguin to new coordinates**

Move penguin to new coordinates → **Collect the fish and add them to current_player's score**

Collect the fish and add them to current_player's score → **Change old coordinates ice tile into sea**

Change old coordinates ice tile into sea → **Change current_player**