Airplane exercise

Using the concepts of object-oriented programming, build a flight simulator program that simulates the take-off, flight, and landing of an airplane.

You should offer the user a choice between 6 actions (5 airplane actions + 1 application-level action):

1 - Start
2 - Stop
3 - Take off
4 - Increase altitude
5 - Decrease altitude
6 - Exit

Requirements

- Each new airplane should initially be stopped and landed, with an altitude of 0.
- If the user chooses to increase or decrease the altitude, then the airplane's altitude should change by a pre-set amount, such as ±1000 feet.
    - Bonus: Add the ability to change the altitude by a variable amount.
      Don't forget to validate the amount.
- If the airplane reaches at least 10000 feet, a message like "Dangerous altitude!" should appear.
- If the airplane reaches at least 12000 feet, the plane explodes and a message like "Airplane exploded!" should appear.
    - If the airplane has exploded, we should not be able to perform any more actions on it.
    - Bonus: Add the ability to repair an exploded airplane.
- If the airplane returns to 0 feet, it should land automatically.

For each public action method:

- Test whether the action is valid
    - What state must the airplane be in for the action to be valid?
    - That is, what are the necessary conditions for the action being allowed?
- If the action is valid
    - Apply the action by updating the airplane's state
    - Display a message describing the action / state-change
- Else if the action is invalid
    - Display a user-friendly error message to the user
- Return a Boolean error code indicating whether the action was valid/successful

Don't forget:

- Constructor: Correctly initialize all fields
- Field getter methods
- Private setter method for the altitude
- Airplane toString() override method