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Test Case	Description	Test Step	Expected Result	Status
Bird Creation	Test the creation of a general bird type	Create a bird with type GENERAL, characteristic 'Small and fast', not extinct, 2 wings, and preferred food as seeds and insects	The bird object should be created successfully with the type set to GENERAL, characteristic set to 'Small and fast', extinction status set to false, number of wings set to 2, and preferred food list containing 'seeds' and 'insec	Pass or Fail
Negative Number of Wings	Test setting a negative number of wings	Set the number of wings to -1	The system should throw an IllegalArgumentException when attempting to set the number of wings to a negative value.	Pass or Fail
Invalid Bird Type	Test the creation of a bird with a null type	Create a bird with a null type	The system should throw an IllegalArgumentException when attempting to create a bird with a null type.	Pass or Fail
Empty Preferred Food	Test the creation of a bird with an empty preferred food list	Create a bird with an empty preferred food list	The system should throw an IllegalArgumentException with a message indicating that the preferred food list cannot be null or empty when attempting to create a bird with an empty preferred food list.	Pass or Fail
Null Preferred Food	Test the creation of a bird with a null preferred food list	Create a bird with a null preferred food list	The system should throw an IllegalArgumentException when attempting to create a bird with a null preferred food list.	Pass or Fail
Food Requirement	Test the food requirement of a bird	Create a bird and check its food requirement	The bird's food requirement should be correctly calculated and returned as 5.5 when the preferred food list contains '5.5' and 'insects'.	Pass or Fail
Invalid Food Requirement	Test the food requirement of a bird with no specific food requirement	Create a bird and check its food requirement	The bird's food requirement should be returned as 0.0 when there's no specific food requirement provided.	Pass or Fail
BirdOfPrey Creation	Test the creation of a BirdOfPrey type	Create a BirdOfPrey with specific attributes	The BirdOfPrey object should be created successfully with the provided attributes, including a beak type of 'Sharp beak' and visible nostrils.	Pass or Fail
FlightlessBird Creation	Test the creation of a FlightlessBird type	Create a FlightlessBird with specific attributes	The FlightlessBird object should be created successfully with the provided attributes, confirming its inability to fly.	Pass or Fail
Owl Creation	Test the creation of an Owl type	Create an Owl with specific attributes	The Owl object should be created successfully with the provided attributes, confirming the presence of facial disks.	Pass or Fail
Parrot Creation	Test the creation of a Parrot type	Create a Parrot with specific attributes	The Parrot object should be created successfully with the provided attributes, including a vocabulary size of 100 and a favorite saying of 'Polly wants a cracker'.	Pass or Fail
Pigeon Creation	Test the creation of a Pigeon type	Create a Pigeon with specific attributes	The Pigeon object should be created successfully with the provided attributes, confirming the presence of bird milk.	Pass or Fail
Shorebird Creation	Test the creation of a Shorebird type	Create a Shorebird with specific attributes	The Shorebird object should be created successfully with the provided attributes, including its association with a specific water body.	Pass or Fail
Invalid Shorebird Type	Test the creation of a Shorebird with an invalid type	Create a Shorebird with type GENERAL	The system should throw an IllegalArgumentException when attempting to create a Shorebird with an invalid type.	Pass or Fail
Waterfowl Creation	Test the creation of a Waterfowl type	Create a Waterfowl with specific attributes	The Waterfowl object should be created successfully with the provided attributes, including its association with a specific water body.	Pass or Fail
Invalid Waterfowl Type	Test the creation of a Waterfowl with an invalid type	Create a Waterfowl with type GENERAL	The system should throw an IllegalArgumentException when attempting to create a Waterfowl with an invalid type.	Pass or Fail
Add Bird to Aviary	Test adding a bird to the aviary	Add a bird to the aviary	The bird should be successfully added to the aviary.	Pass or Fail
Exceed Max Birds in Aviary	Test adding more birds than the aviary's capacity	Add multiple birds to the aviary until it exceeds its capacity	The system should throw an IllegalStateException when attempting to add more birds than the aviary's capacity.	Pass or Fail
Add Incompatible Bird to Aviary	Test adding an incompatible bird to the aviary	Add a flightless bird and then a bird of prey to the aviary	The system should throw an IllegalArgumentException when attempting to add an incompatible bird to the aviary.	Pass or Fail
Add Extinct Bird to Aviary	Test adding an extinct bird to the aviary	Add an extinct bird to the aviary	The system should throw an IllegalArgumentException when attempting to add an extinct bird to the aviary.	Pass or Fail
Calculate Total Food Needs	Test calculating the total food needs of the birds in the aviary	Add multiple birds to the aviary and then calculate their total food needs	The system should correctly calculate and return the total food needs of all the birds in the aviary.	Pass or Fail