

Binary Search Tree (BST)

Examples

List of pets

ID	Species (Breed)	Age	Health Condition	Vaccines
0	Reptiles (Hamster)	3	80	4
1	Cat (Persian)	5	60	3
2	Rabbit (Angora)	1	20	2
3	Dog (Husky)	4	70	2
4	Bird (Budgerigar)	2	90	1

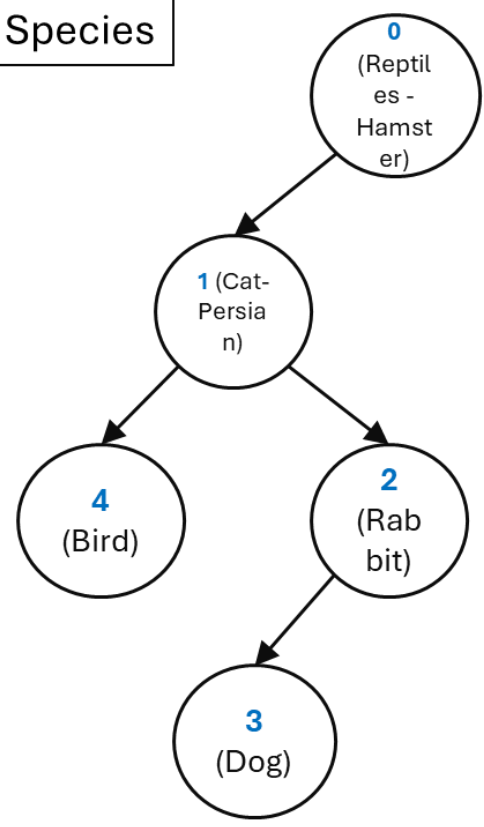
BST Rule: In a binary search tree, the elements are arranged following a specific order. The rule is that the value of a left node must be smaller than its parent node, and the value of a right node must be greater than its parent node.

NOTE:

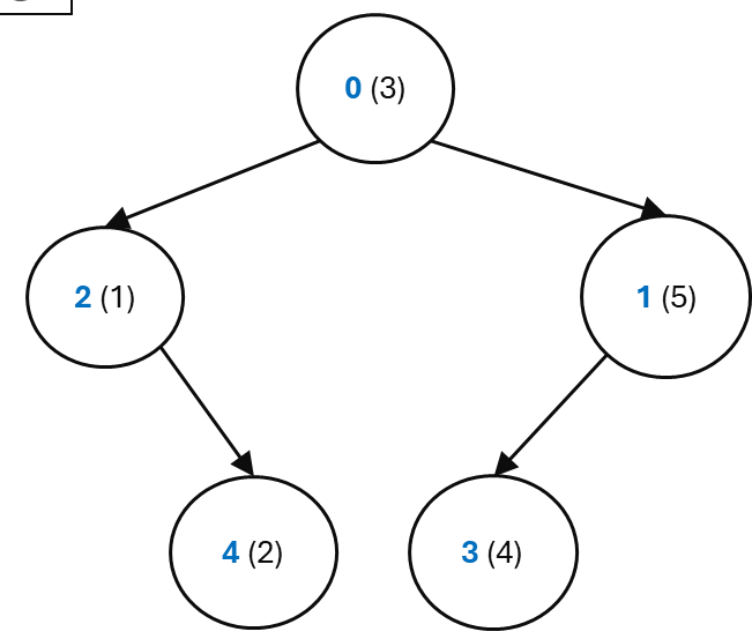
- 1) Blue value represent animal ID in each node for all trees
- 2) Green color represent added node in BST
- 3) Yellow color represent effected nodes after removal of node from BST

1st Step: Create BST based on 4 criteria (Species, Age, Health Condition, Vaccines)

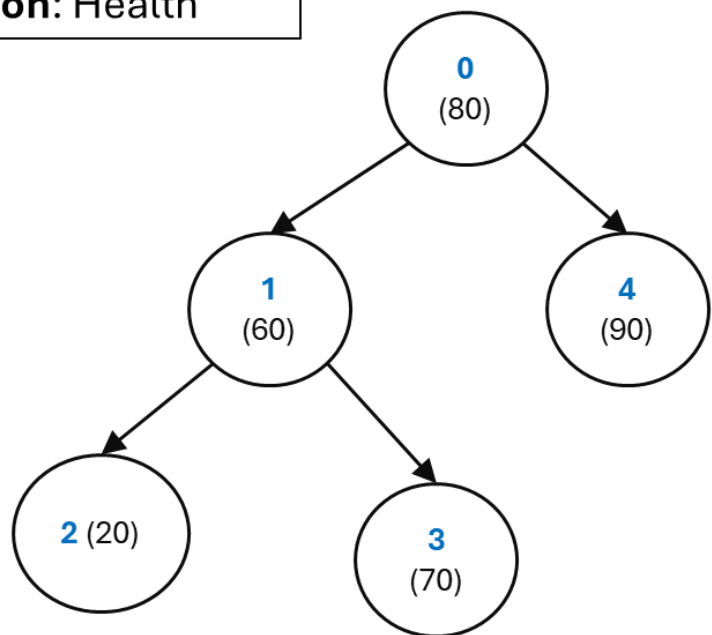
Based on: Species



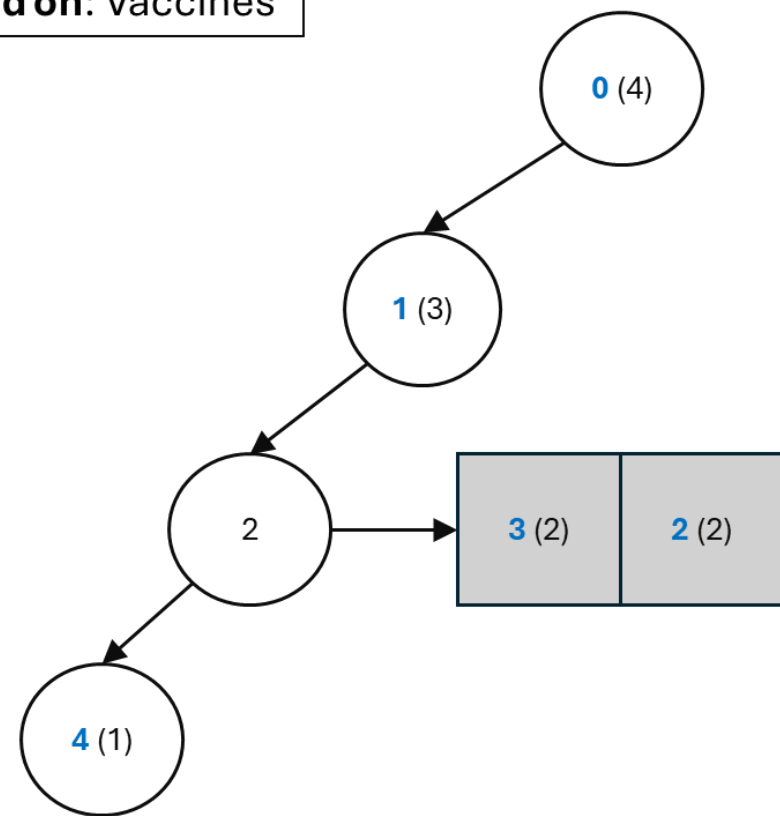
Based on: Age



Based on: Health



Based on: Vaccines

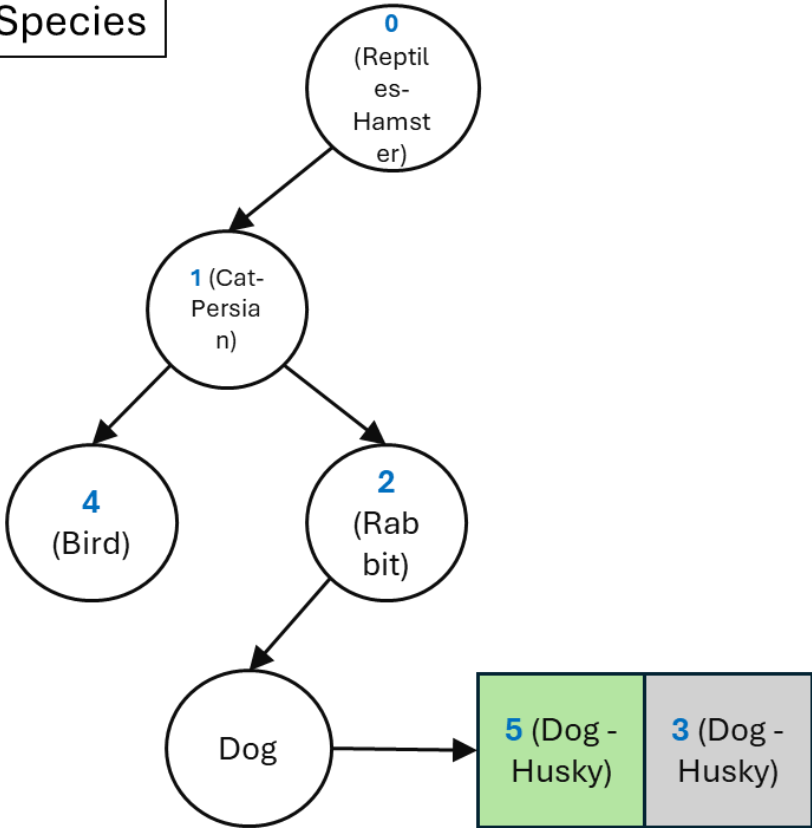


2nd Step: Adding a new animal into BST and updating the tree

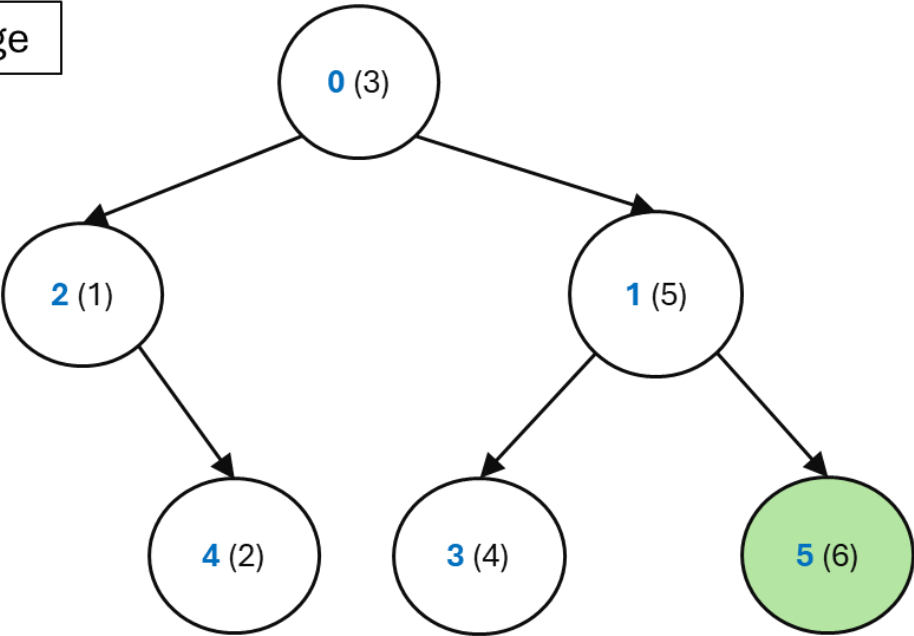
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
5	Dog (Husky)	6	100	5

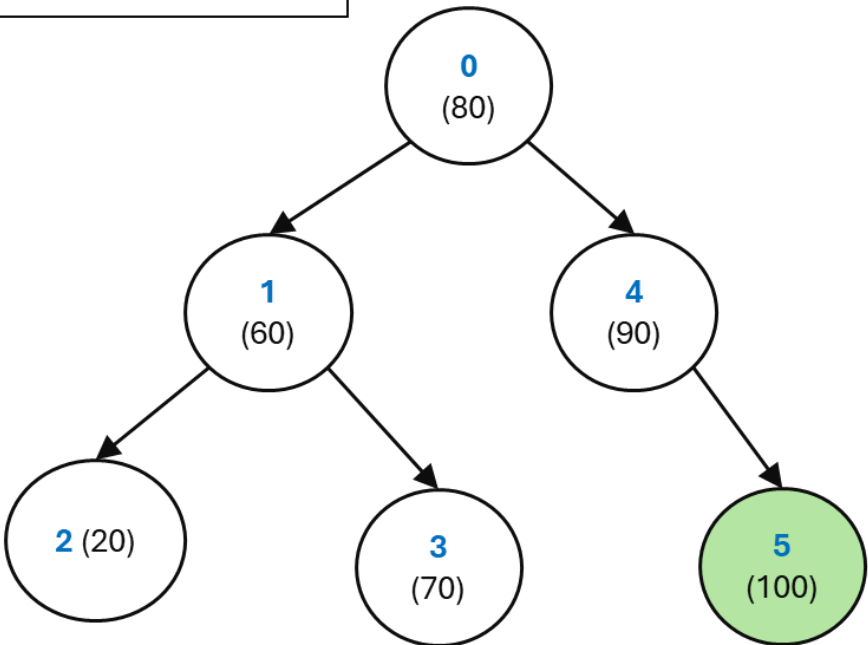
Based on: Species



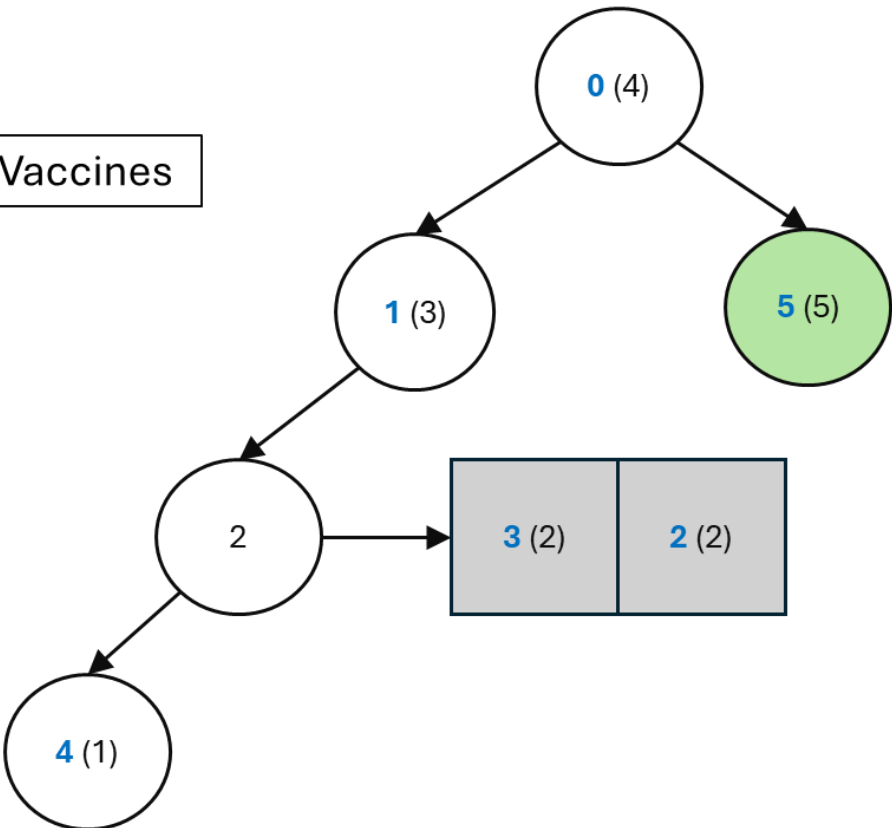
Based on: Age



Based on: Health Condition



Based on: Vaccines

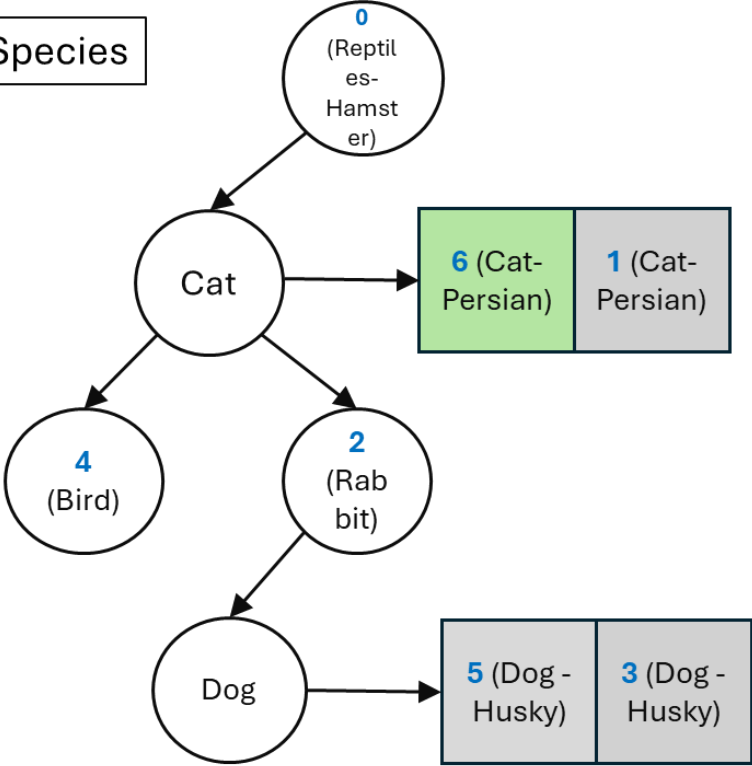


3rd Step: Adding another new animal into BST and updating the tree

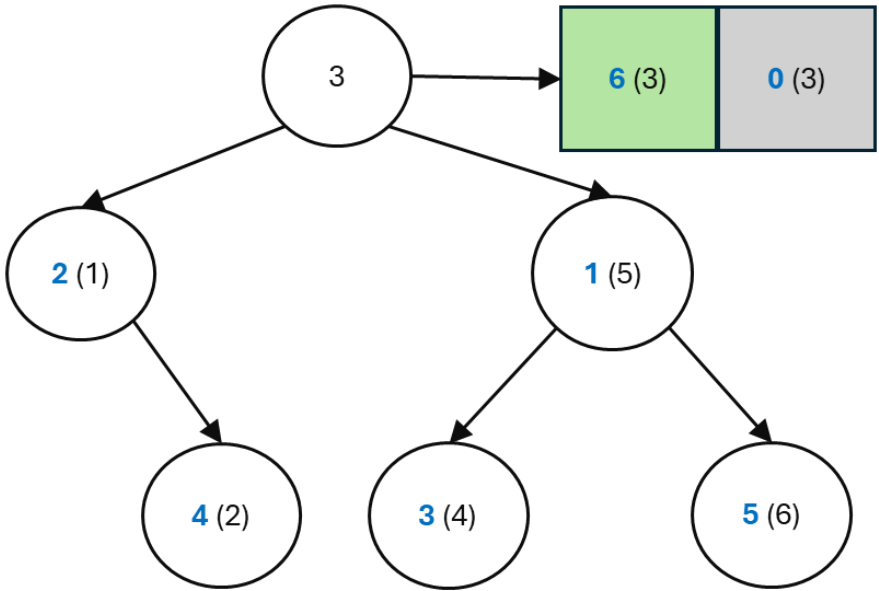
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
6	Cat (Persian)	3	50	2

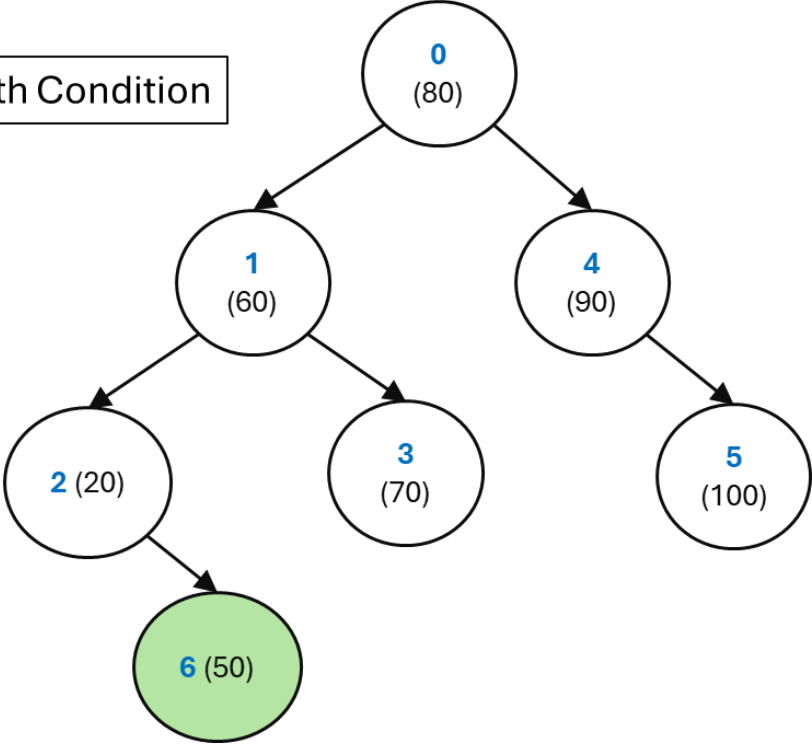
Based on: Species



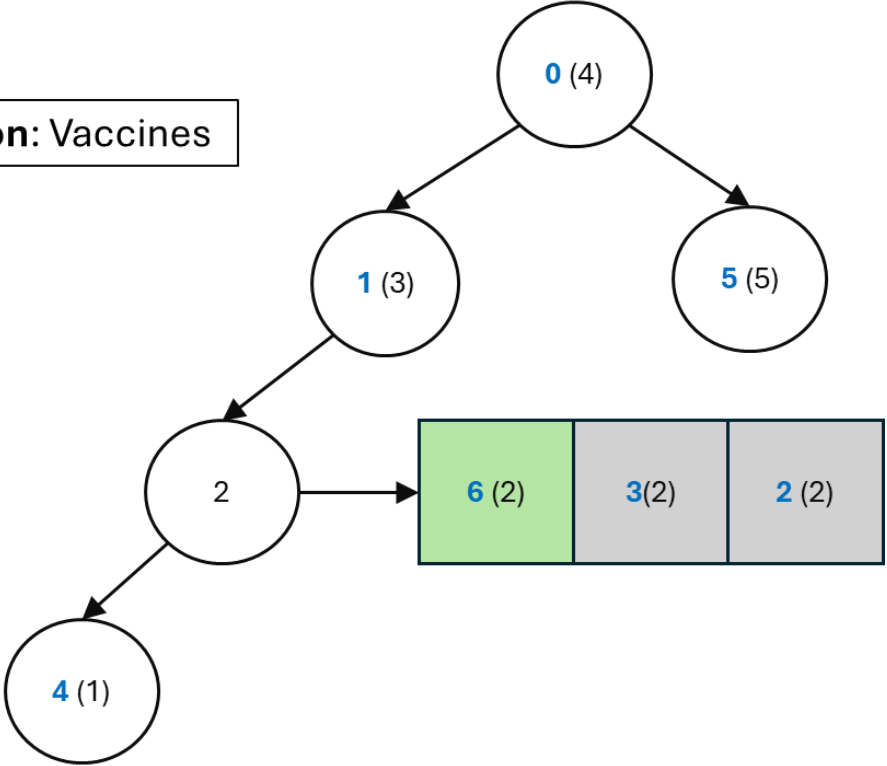
Based on: Age



Based on: Health Condition



Based on: Vaccines

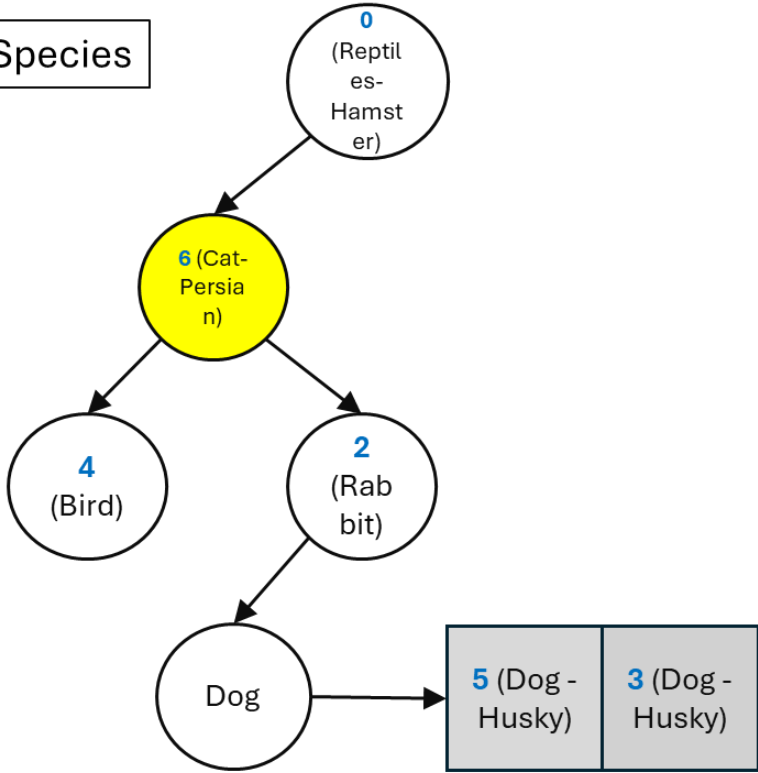


4th Step: Removing an animal from BST and updating the tree

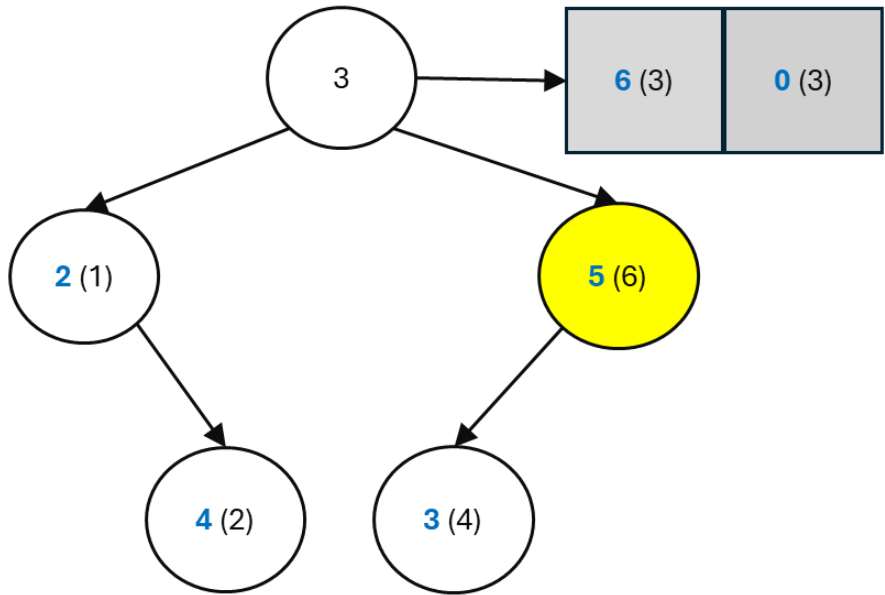
Remove an animal

ID	Species (Breed)	Age	Health condition	Vaccines
1	Cat (Persian)	5	60	3

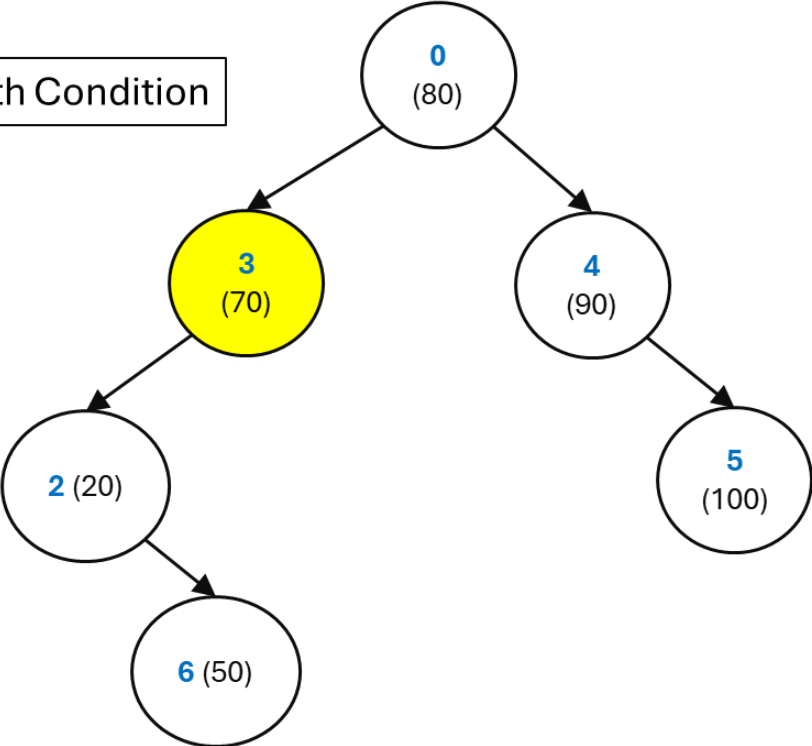
Based on: Species



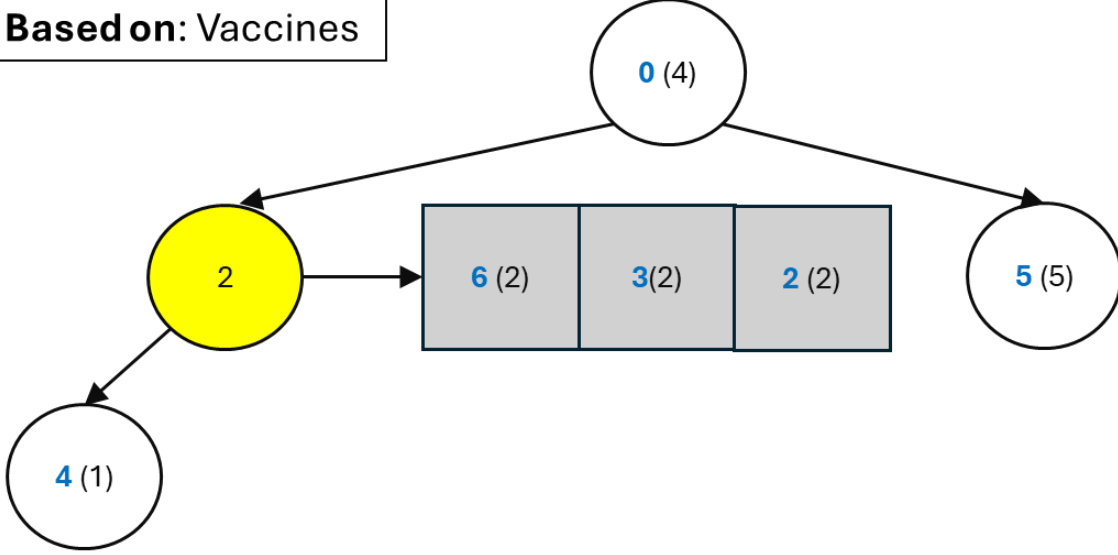
Based on: Age



Based on: Health Condition



Based on: Vaccines

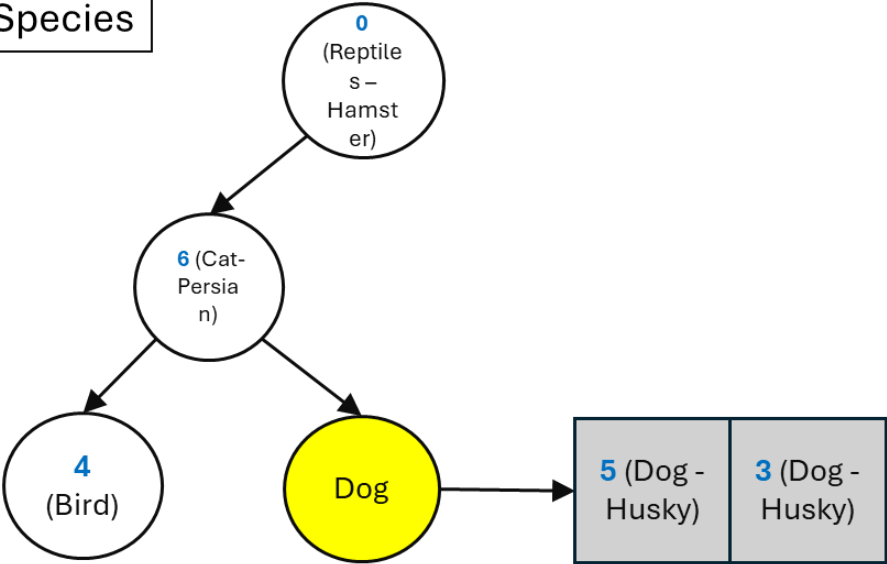


5th Step: Removing an animal from BST and updating the tree

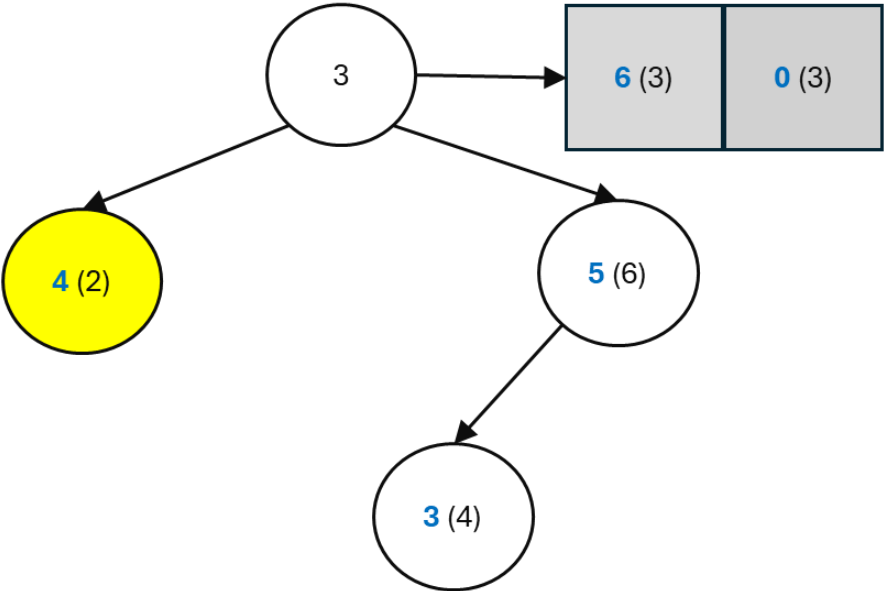
Remove an animal

ID	Species (Breed)	Age	Health condition	Vaccines
2	Rabbit (Angora)	1	20	2

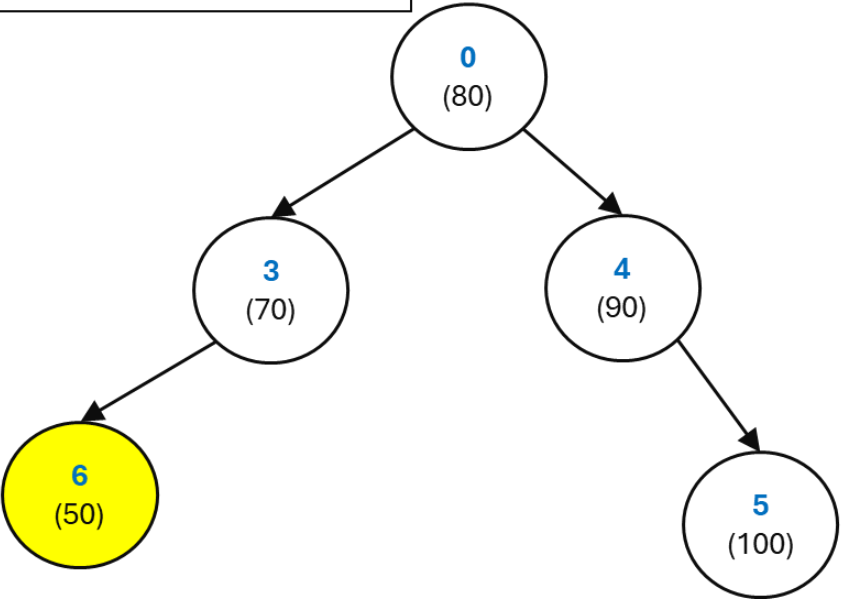
Based on: Species



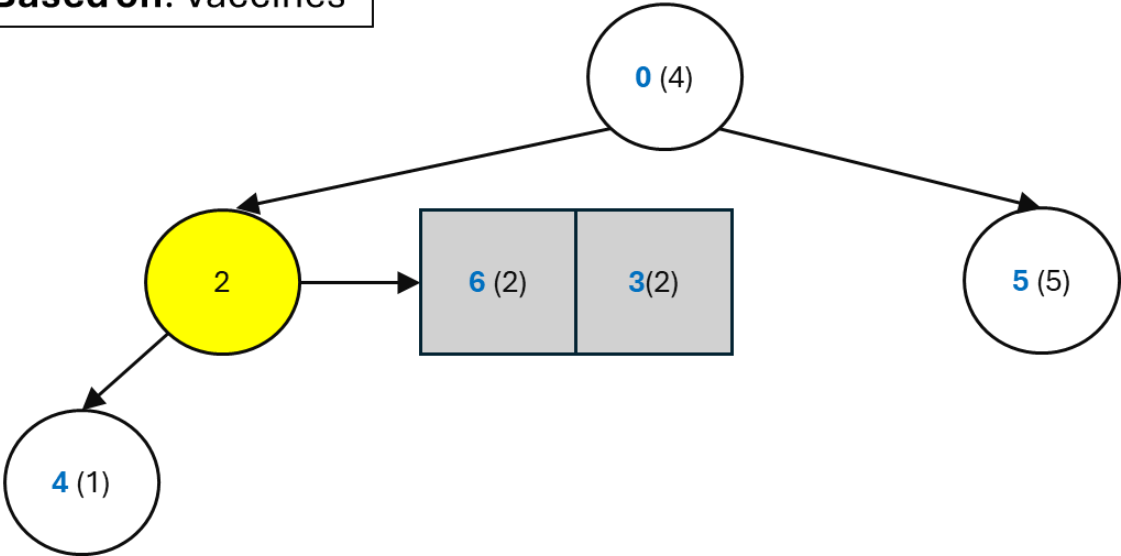
Based on: Age



Based on: Health Condition



Based on: Vaccines

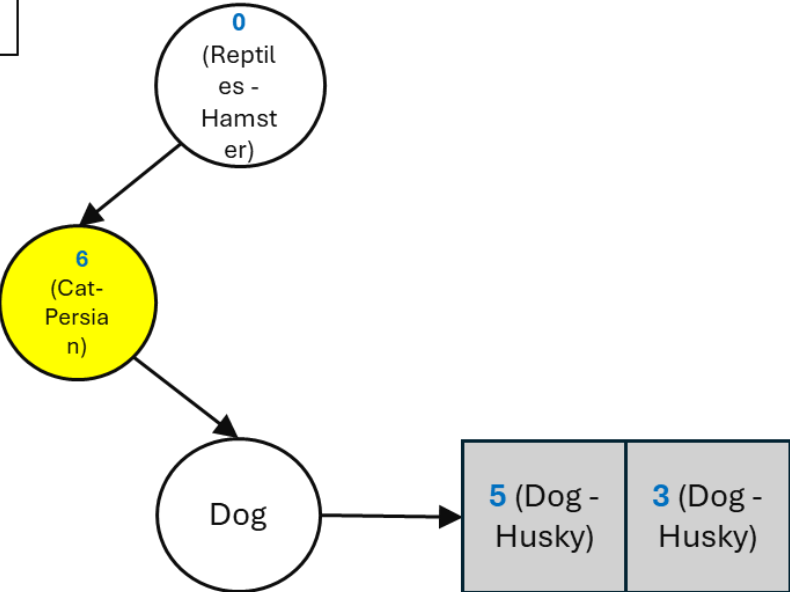


6th Step: Removing an animal from BST and updating the tree

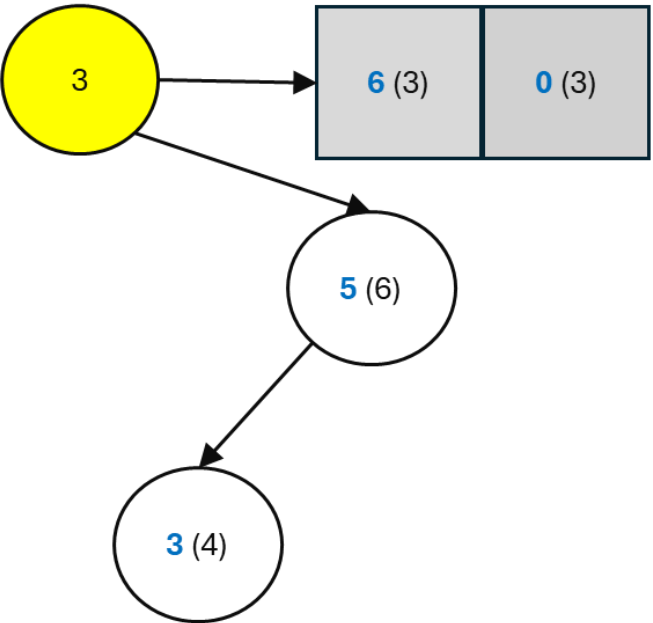
Remove an animal

ID	Species (Breed)	Age	Health condition	Vaccines
4	Bird (Budgerigar)	2	90	1

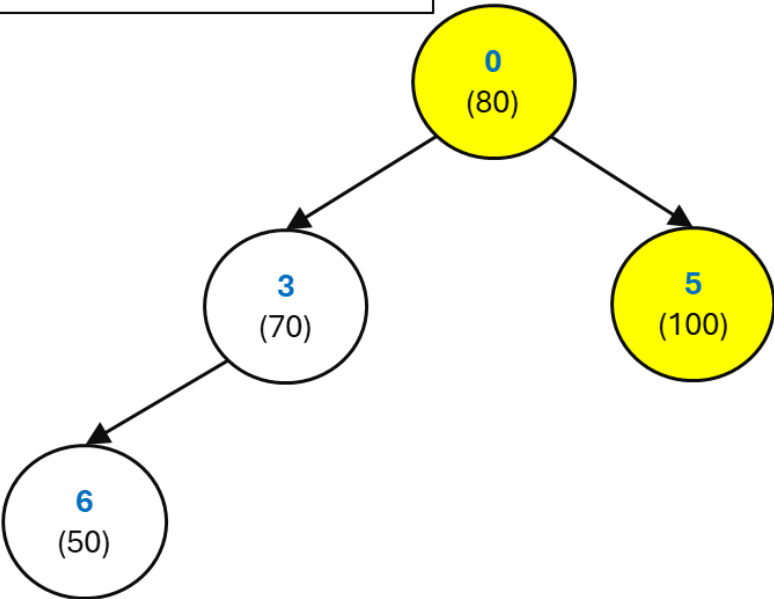
Based on: Species



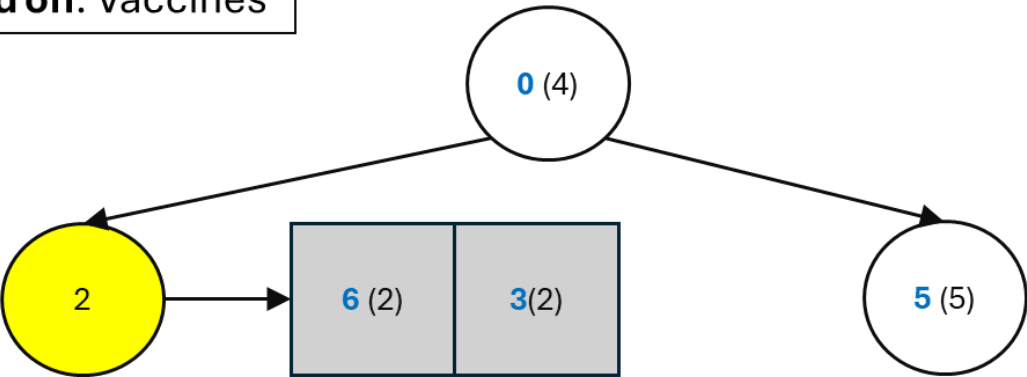
Based on: Age



Based on: Health Condition



Based on: Vaccines

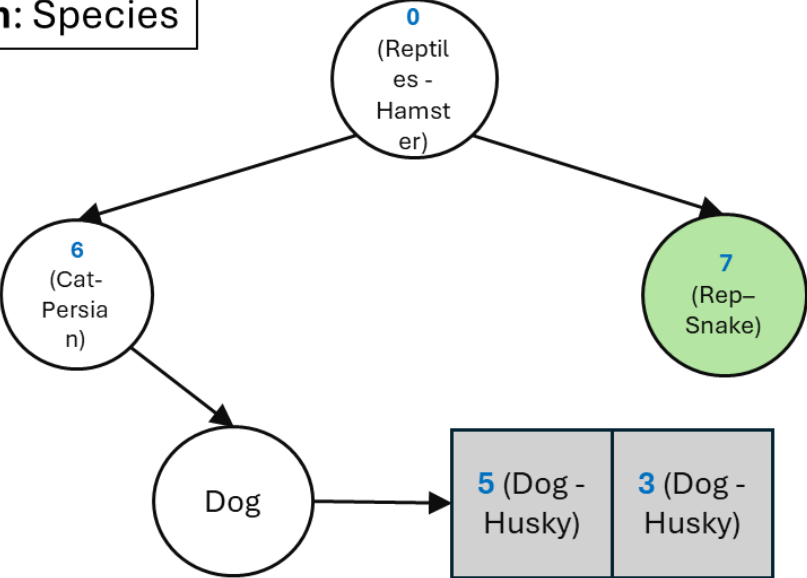


7th Step: Adding another new animal into BST and updating the tree

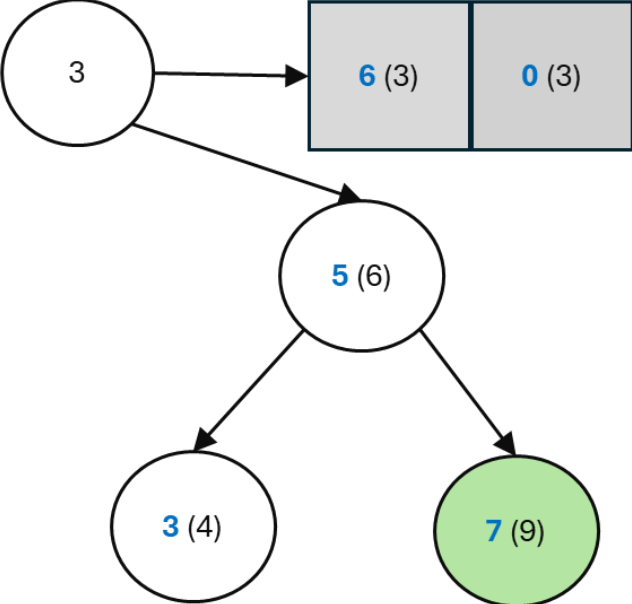
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
7	Reptiles (Snake)	9	20	6

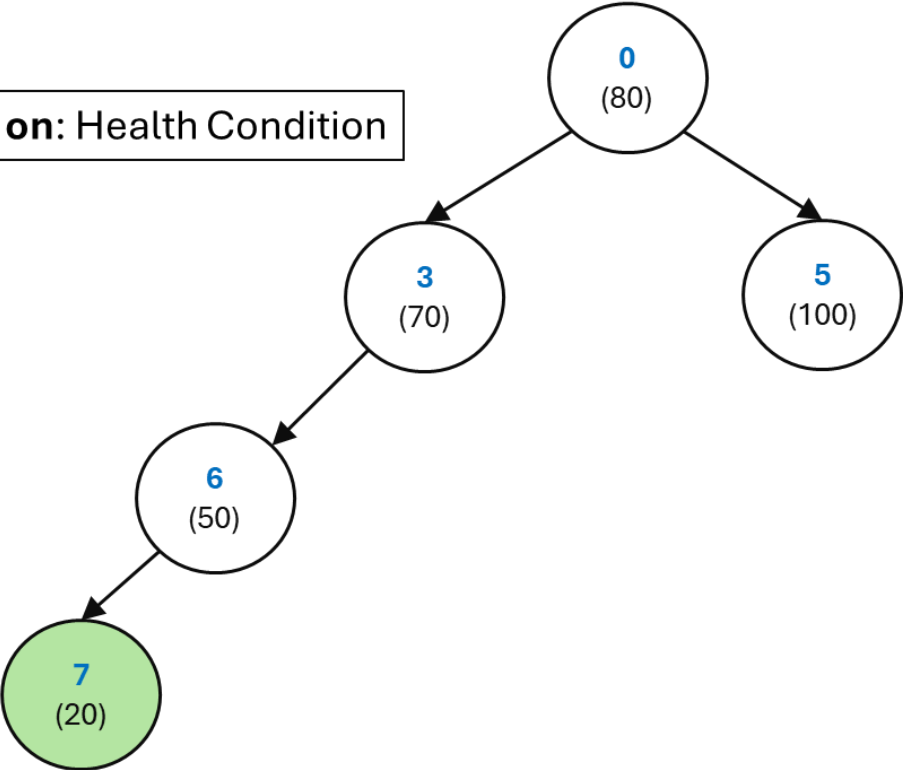
Based on: Species



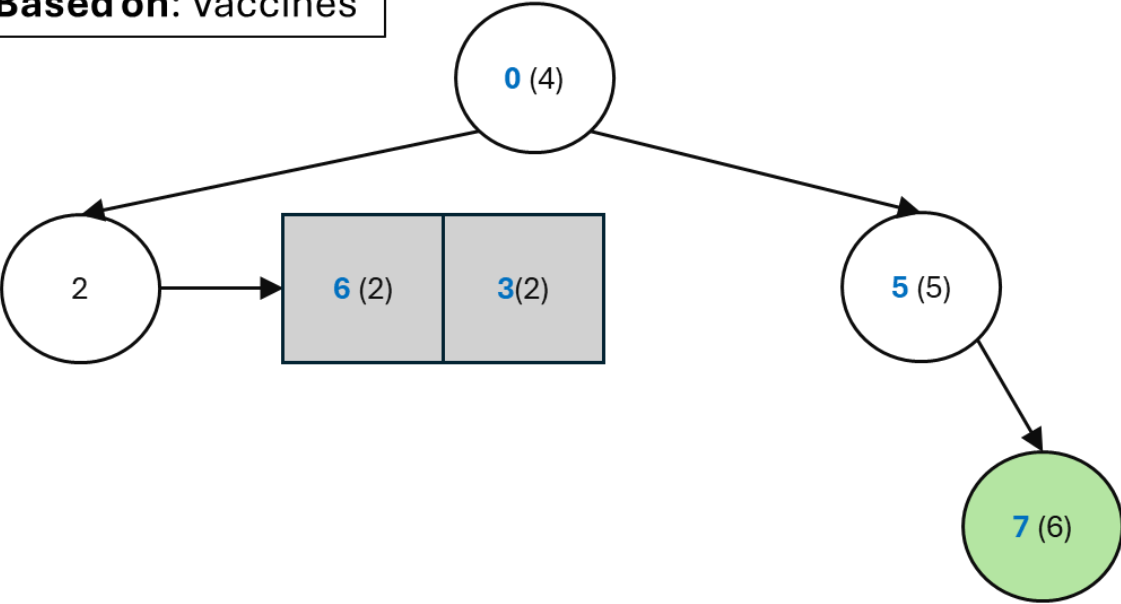
Based on: Age



Based on: Health Condition



Based on: Vaccines

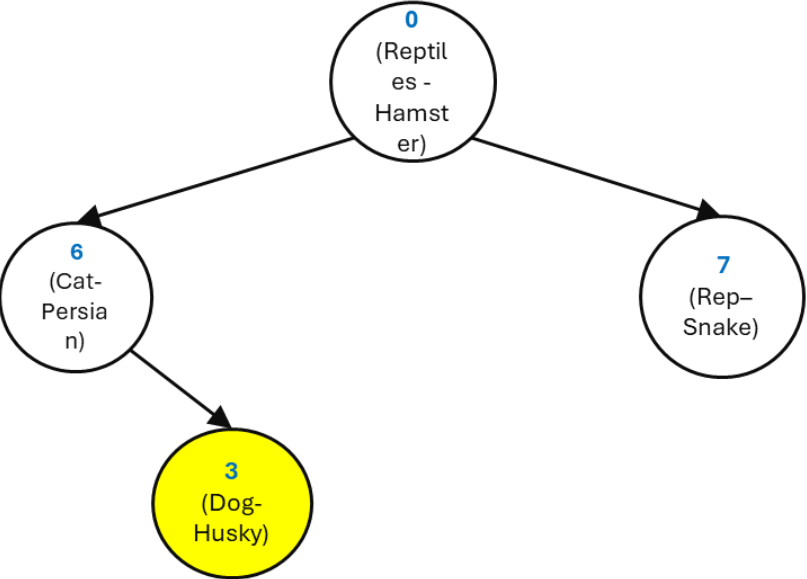


8th Step: Removing an animal from BST and updating the tree

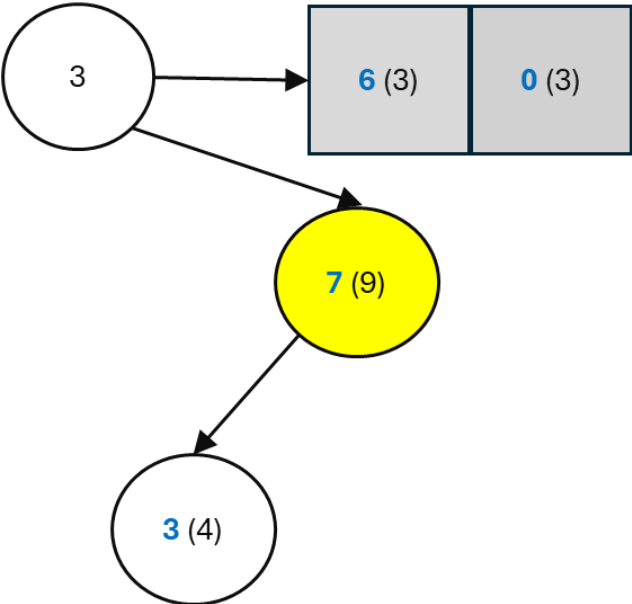
Remove an animal

ID	Species (Breed)	Age	Health condition	Vaccines
5	Dog (Husky)	6	100	5

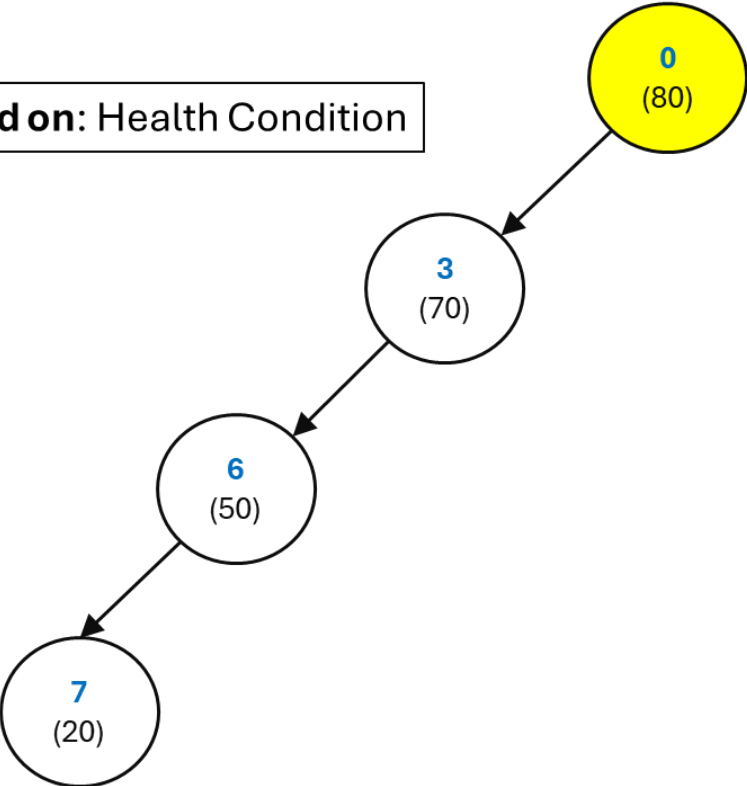
Based on: Species



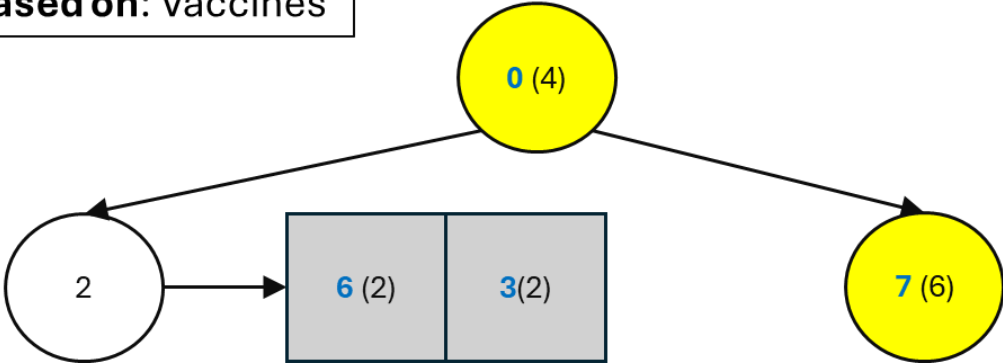
Based on: Age



Based on: Health Condition



Based on: Vaccines

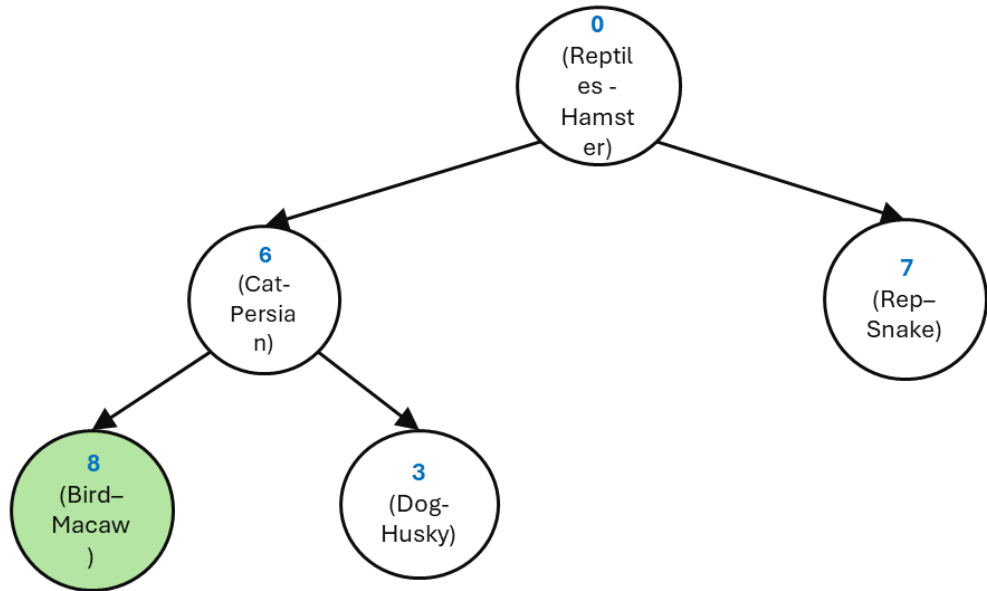


9th Step: Adding another new animal into BST and updating the tree

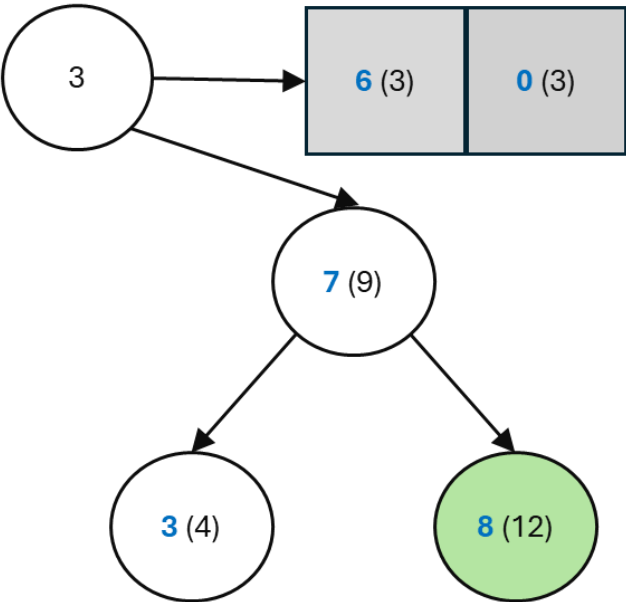
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
8	Bird (Macaw)	12	100	10

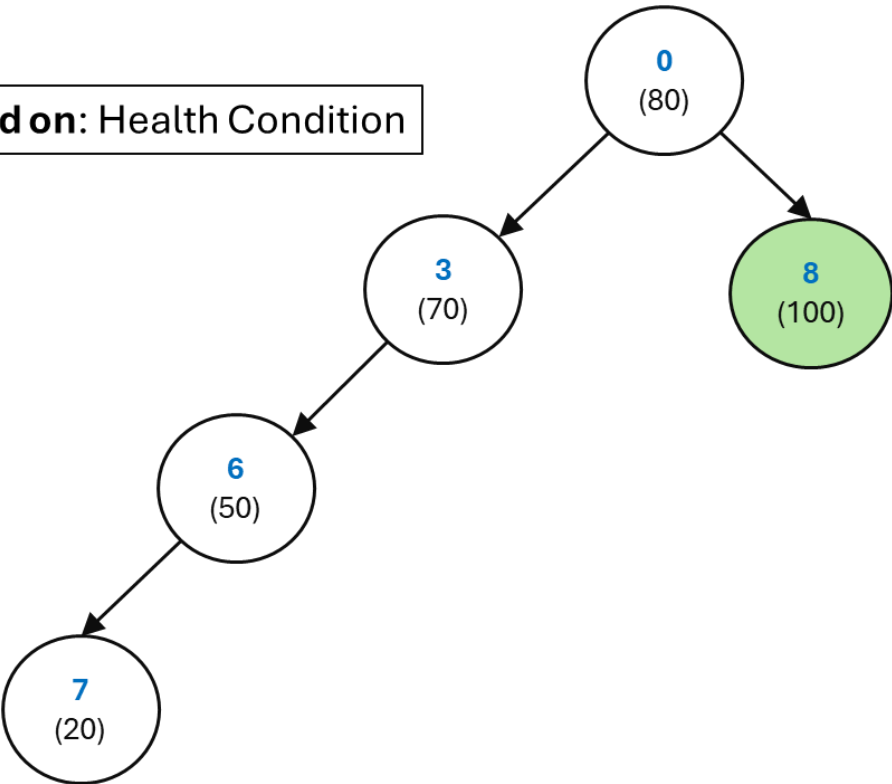
Based on: Species



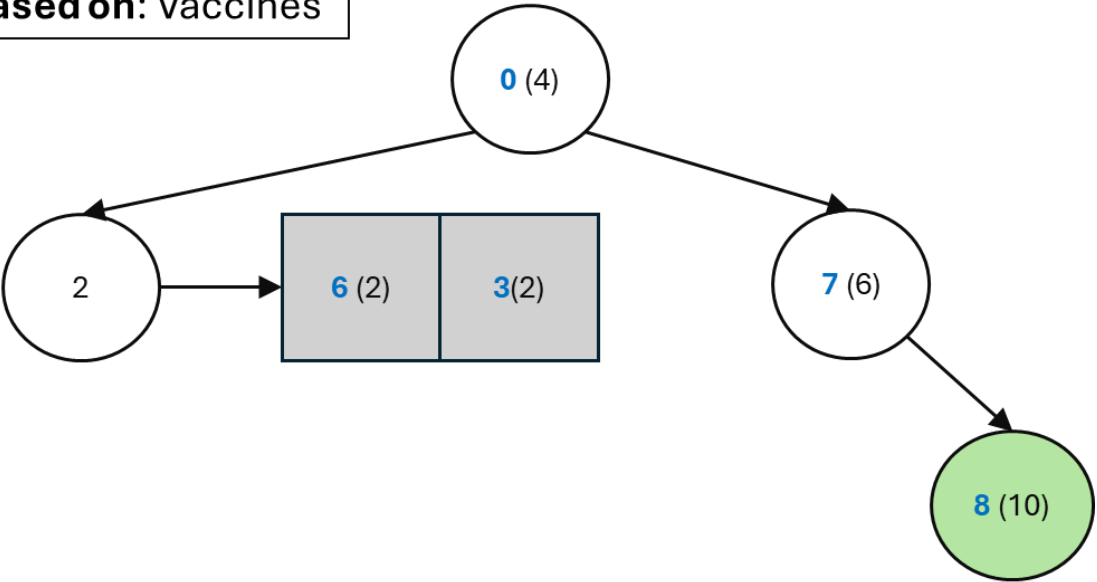
Based on: Age



Based on: Health Condition



Based on: Vaccines

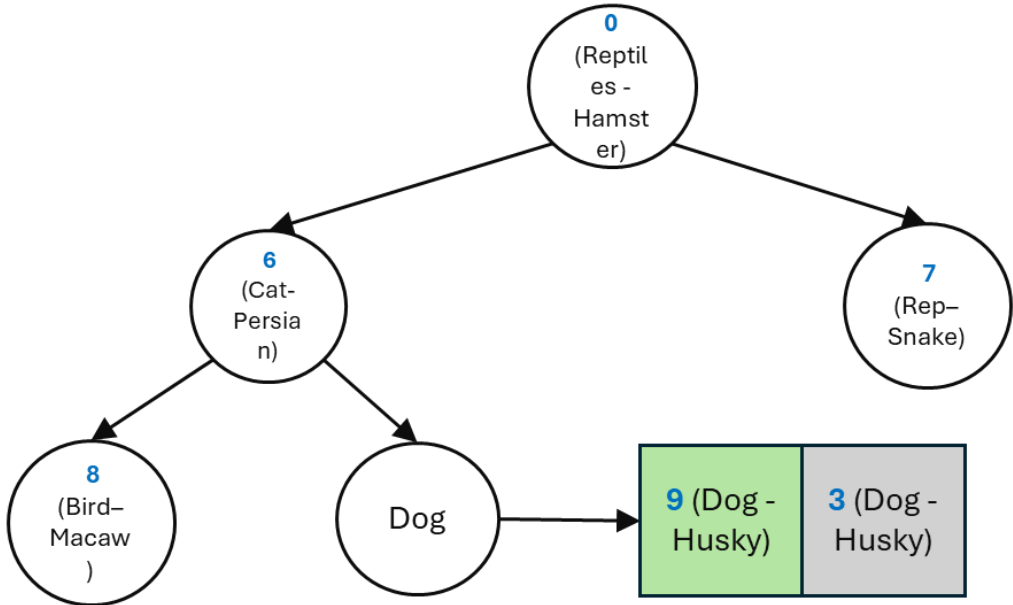


10th Step: Adding another new animal into BST and updating the tree

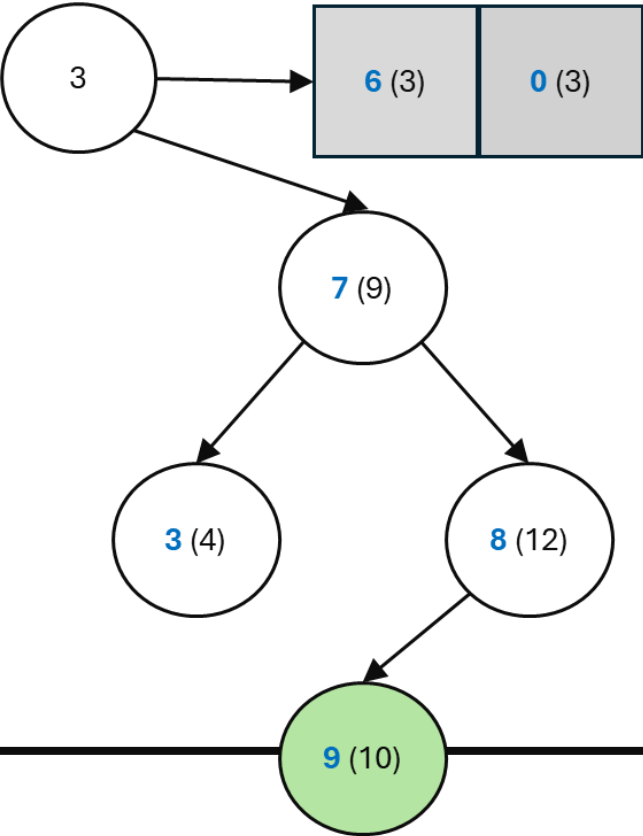
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
9	Dog (Husky)	10	90	7

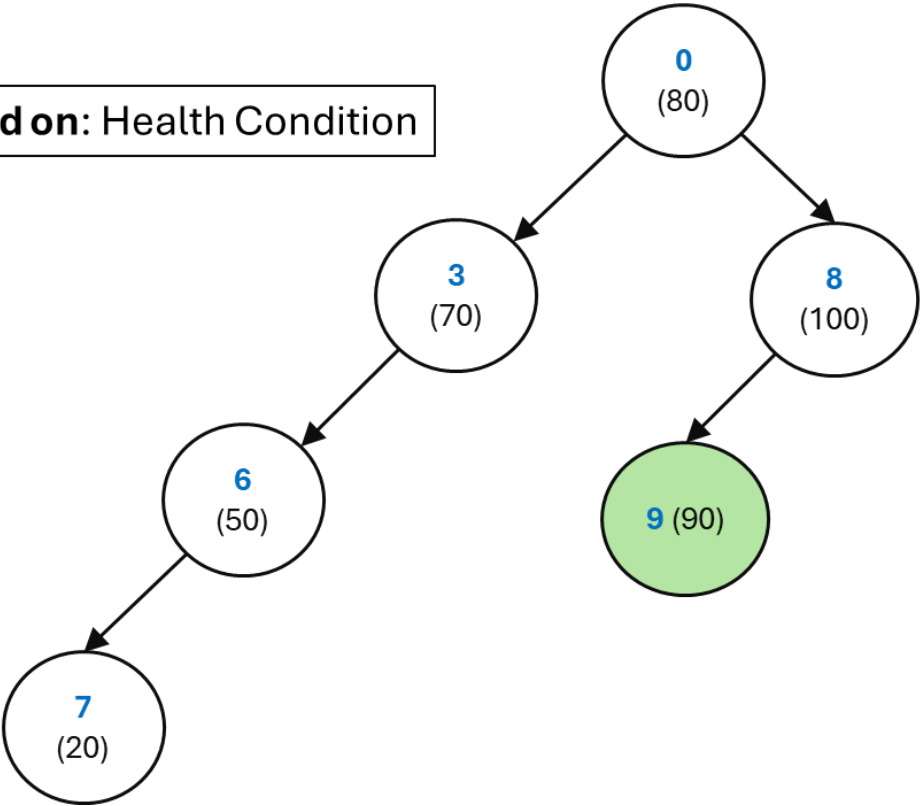
Based on: Species



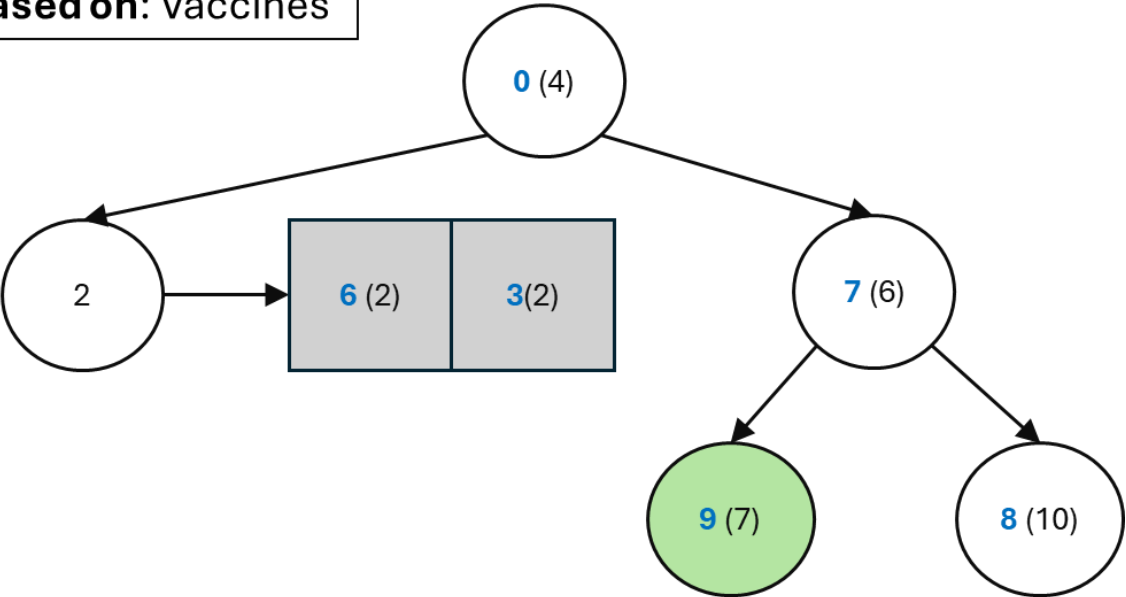
Based on: Age



Based on: Health Condition



Based on: Vaccines

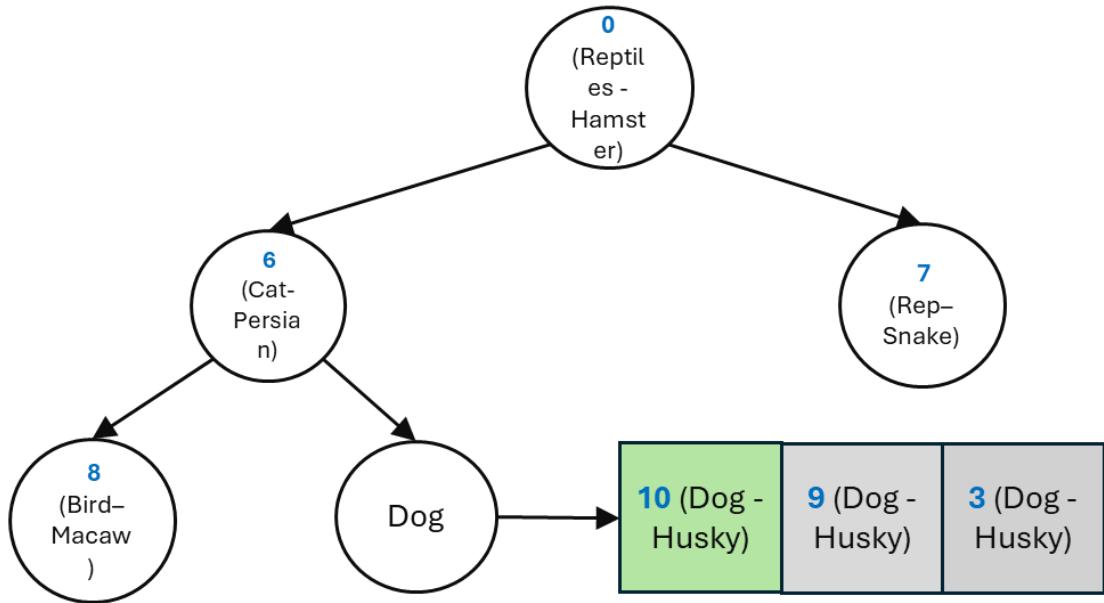


11th Step: Adding another new animal into BST and updating the tree

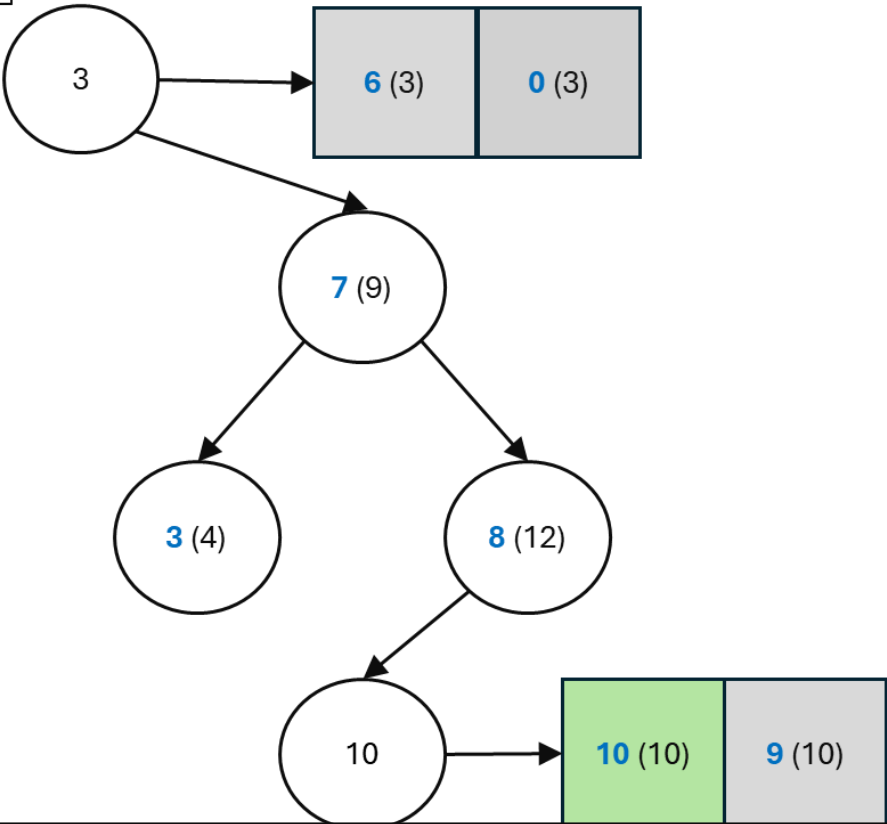
Add a new animal

ID	Species (Breed)	Age	Health condition	Vaccines
10	Dog (Husky)	10	120	2

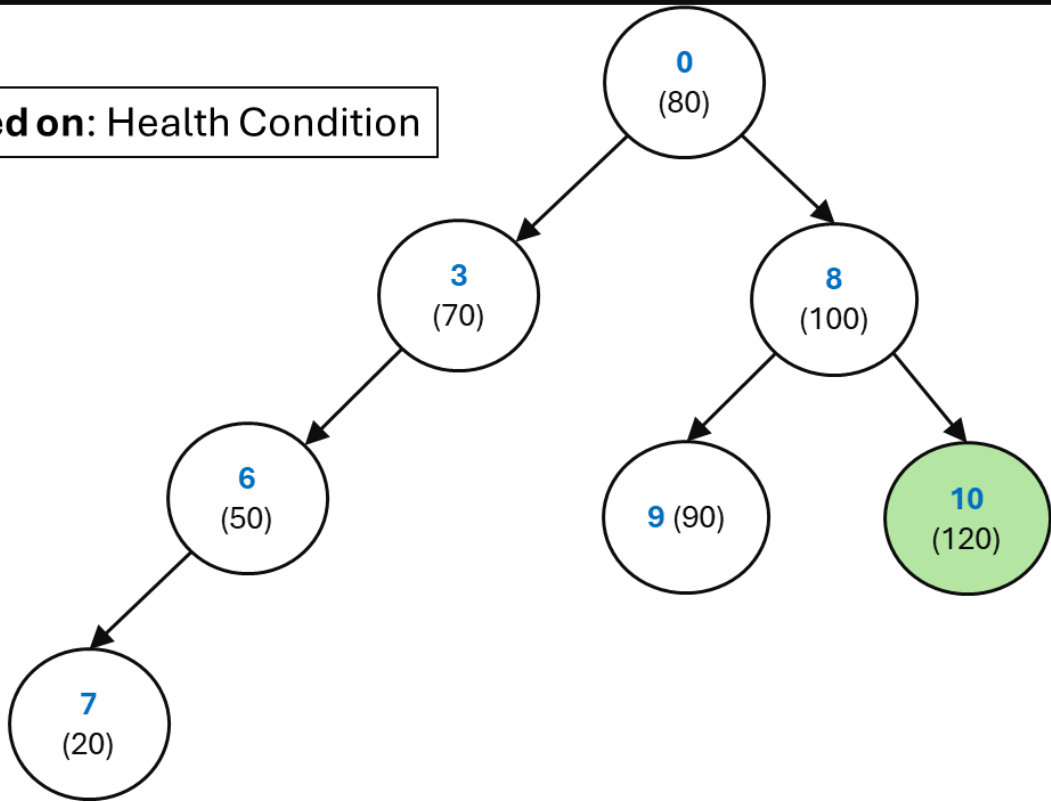
Based on: Species



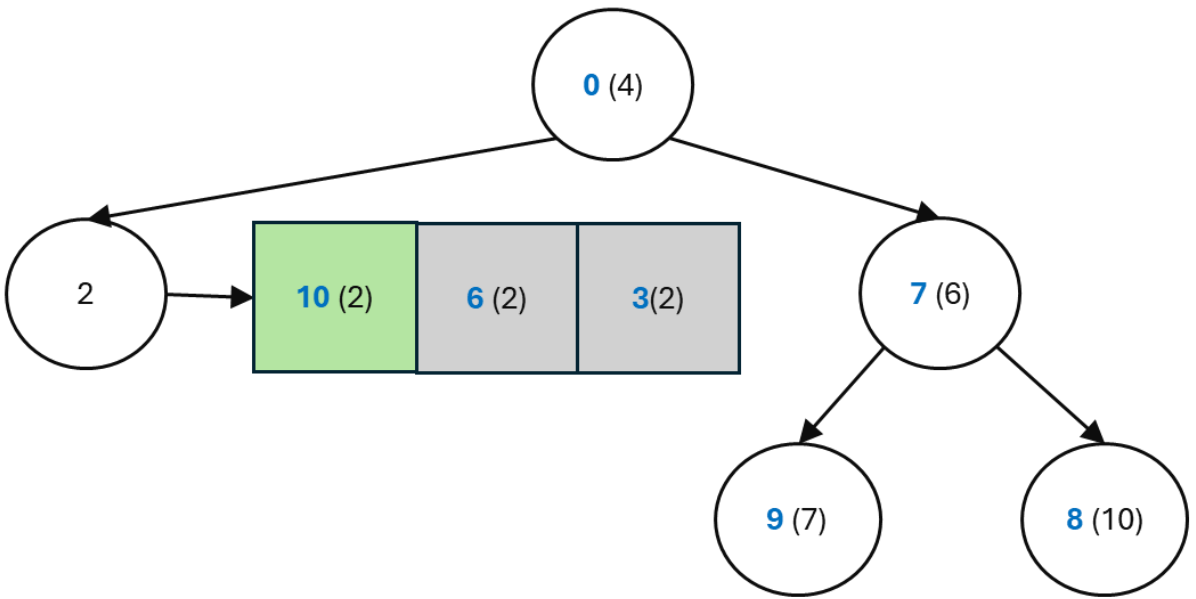
Based on: Age



Based on: Health Condition



Based on: Vaccines

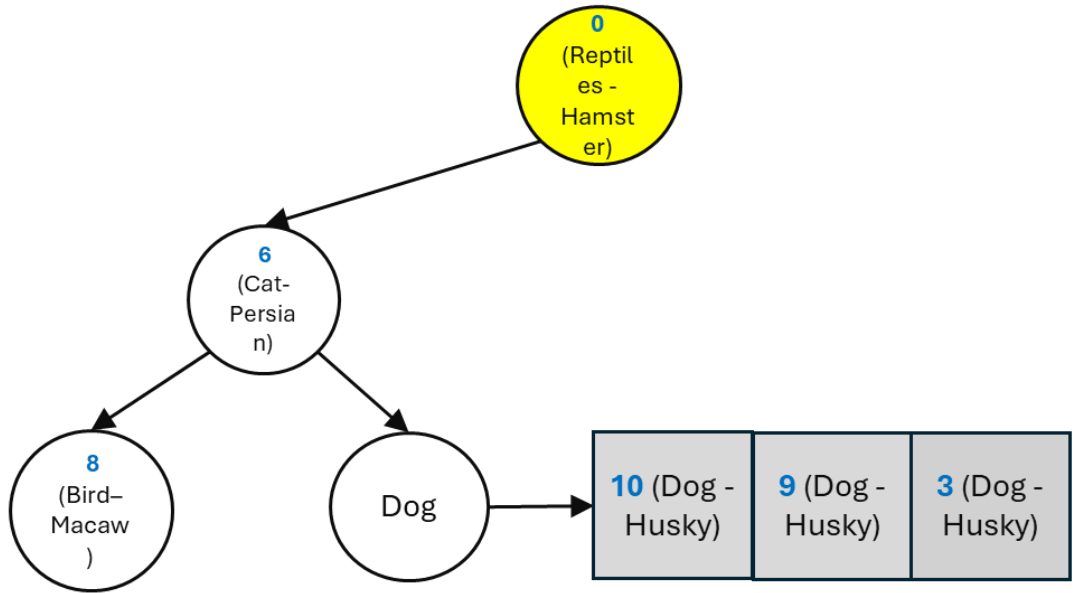


12th Step: Removing an animal from BST and updating the tree

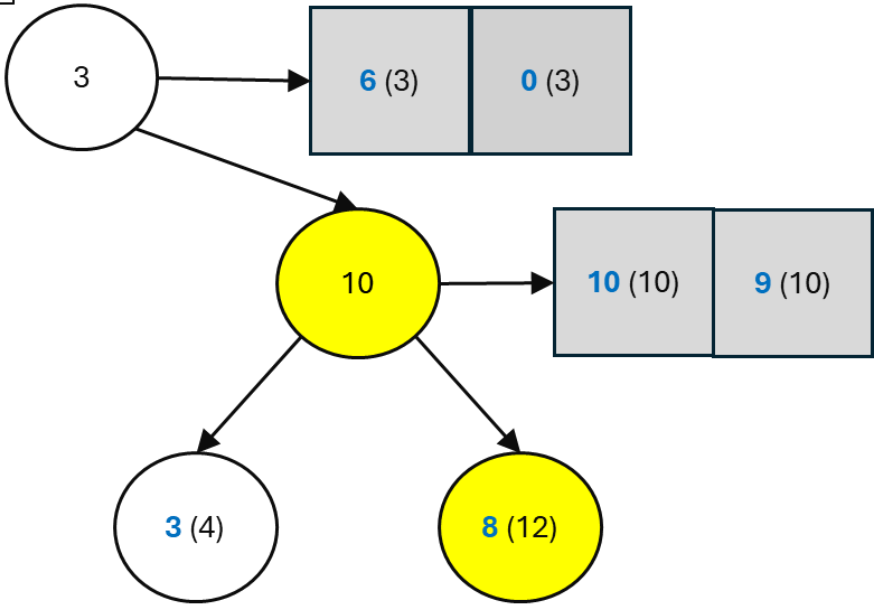
Remove an animal

ID	Species (Breed)	Age	Health condition	Vaccines
7	Reptiles (Snake)	9	20	6

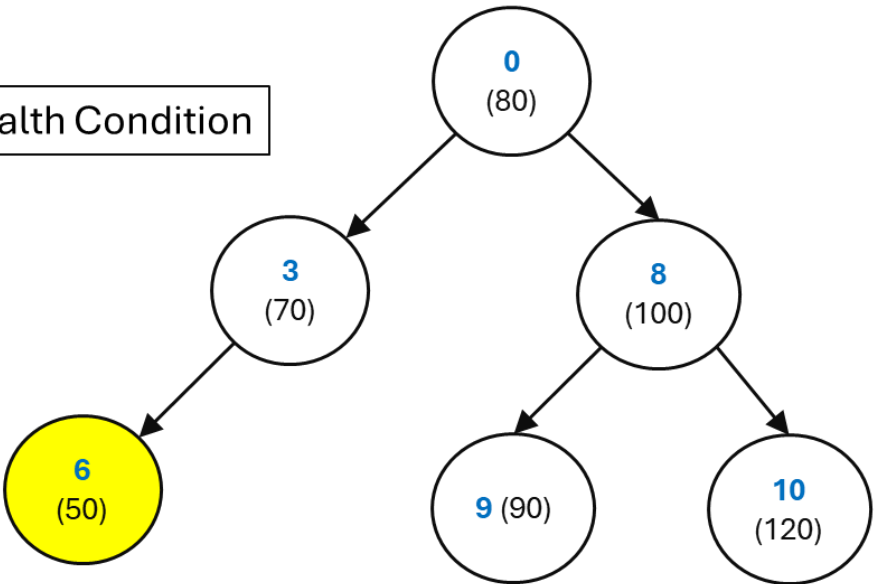
Based on: Species



Based on: Age



Based on: Health Condition



Based on: Vaccines

