Project 2

Name: 이동민, 이민지

1.

Code attached. Below is the result of the code.

\# file = post-order, Answer = right

```
dongminlee:project2/ (masterx) $ python3 project2_1.py
################################## CODE ##################################
filename = input("Enter filename: ")
preorder = input("preorder or postorder: ")
if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)

################################## RESULT ##################################
Enter filename: tree_example_postorder.txt
preorder or postorder: postorder
Are you a mammal? [Y or N] Y
Are you bigger than a cat? [Y or N] Y
My guess is Kangaroo. Am I right? [Y or N] Y
Shall we play again? [Y or N] N
Save as: example_1.txt
Are you a mammal?
|___ Do you live underwater?
|     |___ Robin
|     |
|     |___ Trout
|
|___ Are you bigger than a cat?
      |___ Mouse
      |
      |___ Kangaroo
```

file = post-order, Answer = wrong

```
dongminlee:project2/ (masterx) $ python3 project2_1.py
################################# CODE #################################
filename = input("Enter filename: ")
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if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################# RESULT #################################
Enter filename: tree_example_postorder.txt
preorder or postorder: postorder
Are you a mammal? [Y or N] Y
Are you bigger than a cat? [Y or N] Y
My guess is Kangaroo. Am I right? [Y or N] N
I give up. What are you? human
Please type a yes/no question that will distinguish a human from a Kangaroo
Your question: Can you understand the python code?
As a human, Can you understand the python code? Please answer [Y or N] Y
Shall we play again? [Y or N] N
Save as: example_2.txt
Are you a mammal?
|___ Do you live underwater?
|    |___ Robin
|    |
|    |___ Trout
|
|___ Are you bigger than a cat?
     |___ Mouse
     |
     |___ Can you understand the python code?
          |___ Kangaroo
          |
          |___ human
```

file = pre-order, Answer = right

```
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################################# CODE #################################
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preorder = input("preorder or postorder: ")
if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################# RESULT #################################
Enter filename:  tree_example_preorder.txt
preorder or postorder: preorder
Are you a mammal? [Y or N] Y
Are you bigger than a cat? [Y or N] Y
My guess is Kangaroo. Am I right? [Y or N] Y
Shall we play again? [Y or N] N
Save as: example_3.txt
Are you a mammal?
|___ Do you live underwater?
|    |___ Robin
|    |
|    |___ Trout
|
|___ Are you bigger than a cat?
     |___ Mouse
     |
     |___ Kangaroo
```

file = pre-order, Answer = wrong

```
dongminlee:project2/ (master) $ python3 project2_1.py
#################################### CODE ####################################
filename = input("Enter filename: ")
preorder = input("preorder or postorder: ")
if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


#################################### RESULT ####################################
Enter filename:    tree_example_preorder.txt
preorder or postorder: preorder
Are you a mammal? [Y or N] Y
Are you bigger than a cat? [Y or N] Y
My guess is Kangaroo. Am I right? [Y or N] N
I give up. What are you? Human
Please type a yes/no question that will distinguish a Human from a Kangaroo
Your question: Can you understand the python code?
As a Human, Can you understand the python code? Please answer [Y or N] Y
Shall we play again? [Y or N] N
Save as: example_4.txt
Are you a mammal?
|___ Do you live underwater?
|    |___ Robin
|    |
|    |___ Trout
|
|___ Are you bigger than a cat?
     |___ Mouse
     |
     |___ Can you understand the python code?
          |___ Kangaroo
          |
          |___ Human
```

2.

Let n be the number of the nodes. Then both data structures, reading in pre-order and post-order takes O(n).

3.

Code attached. Below is the result of the code.

file = post-order, Answer = right

```
dongminlee:project2/ (masterx) $ python3 tree.py
################################ CODE ################################
filename = input("Enter filename: ")
preorder = input("preorder or postorder: ")
if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################ RESULT ################################
Enter filename: tree_example_postorder.txt
preorder or postorder: postorder
Are you a mammal? [Y or N or U] Y
Are you bigger than a cat? [Y or N or U] Y
My guess is Kangaroo. Am I right? [Y or N or U] Y
Shall we play again? [Y or N] N
Save as: example_5.txt
Are you a mammal?
|___ Do you live underwater?
|    |___ Robin
|    |
|    |___ Trout
|
|___ Are you bigger than a cat?
     |___ Mouse
     |
     |___ Kangaroo
```

file = post-order, Answer = wrong

```
dongminlee:project2/ (masterx) $ python3 tree.py
################################ CODE ################################
filename = input("Enter filename: ")
preorder = input("preorder or postorder: ")
if preorder in ('preorder', 'postorder'):
    is_preorder = True if preorder == 'preorder' else False
    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################ RESULT ################################
Enter filename: tree_example_postorder.txt
preorder or postorder: postorder
Are you a mammal? [Y or N or U] Y
Are you bigger than a cat? [Y or N or U] Y
My guess is Kangaroo. Am I right? [Y or N or U] N
I give up. What are you? Human
Please type a yes/no question that will distinguish a Human from a Kangaroo
Your question: Can you understand the python code?
As a Human, Can you understand the python code? Please answer [Y or N or U] Y
Shall we play again? [Y or N] N
Save as: example_6.txt
Are you a mammal?
|___ Do you live underwater?
|    |___ Robin
|    |
|    |___ Trout
|
|___ Are you bigger than a cat?
     |___ Mouse
     |
     |___ Can you understand the python code?
          |___ Kangaroo
          |
          |___ Human
```

file = pre-order, Answer = right

```
dongminlee:project2/ (masterx) $ python3 tree.py
################################ CODE ################################
filename = input("Enter filename: ")
preorder = input("preorder or postorder: ")
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    is_preorder = True if preorder == 'preorder' else False
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    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################ RESULT ################################
Enter filename: tree_example_preorder.txt
preorder or postorder: preorder
Are you a mammal? [Y or N or U] Y
Are you bigger than a cat? [Y or N or U] Y
My guess is Kangaroo. Am I right? [Y or N or U] Y
Shall we play again? [Y or N] N
Save as: example_7.txt
Are you a mammal?
|___ Do you live underwater?
|     |___ Robin
|     |
|     |___ Trout
|
|___ Are you bigger than a cat?
      |___ Mouse
      |
      |___ Kangaroo
```

file = pre-order, Answer = wrong

```
dongminlee:project2/ (masterx) $ python3 tree.py
################################ CODE ################################
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preorder = input("preorder or postorder: ")
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    t = quiz(Tree.read_txt(filename, is_preorder))
    new_filename = input("Save as: ")
    with open(new_filename, 'w') as f:
        f.write(t.preorder() if is_preorder else t.postorder())
    print(t)


################################ RESULT ################################
Enter filename: tree_example_preorder.txt
preorder or postorder: preorder
Are you a mammal? [Y or N or U] Y
Are you bigger than a cat? [Y or N or U] Y
My guess is Kangaroo. Am I right? [Y or N or U] N
I give up. What are you? Human
Please type a yes/no question that will distinguish a Human from a Kangaroo
Your question: Can you understand the python code?
As a Human, Can you understand the python code? Please answer [Y or N or U] Y
Shall we play again? [Y or N] N
Save as: example_8.txt
Are you a mammal?
|___ Do you live underwater?
|     |___ Robin
|     |
|     |___ Trout
|
|___ Are you bigger than a cat?
      |___ Mouse
      |
      |___ Can you understand the python code?
            |___ Kangaroo
            |
            |___ Human
```