

PL UID: 0

Question 1: tree\_traversal\_find\_all

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Question 1.1: In-Order

---

```
{
  "tree": "digraph {
    nranksep=0.25;
    nnode [shape=circle fontsize=18 margin=\"0.03,0.03\"]
    nedge [arrowsize=0.5]
    n6 [label=\"L\"]
    n6 -> n1 [arrowsize=0.5]
    n1 [label=\"H\"]
    n1 -> n0 [arrowsize=0.5]
    n0 [label=\"W\"]
    invis_1_2 [label=\"\",width=.1,style=invis]
    n1 -> invis_1_2 [style=invis]
    n1 -> n4
    n4 [label=\"I\"]
    n4 -> n3 [arrowsize=0.5]
    n3 [label=\"V\"]
    n3 -> n2 [arrowsize=0.5]
    n2 [label=\"O\"]
    invis_3_2 [label=\"\",width=.1,style=invis]
    n3 -> invis_3_2 [style=invis]
    invis_3_3 [label=\"\",width=.1,style=invis]
    n3 -> invis_3_3 [style=invis]
    invis_4_2 [label=\"\",width=.1,style=invis]
    n4 -> invis_4_2 [style=invis]
    n4 -> n5
    n5 [label=\"L\"]
    invis_6_2 [label=\"\",width=.1,style=invis]
    n6 -> invis_6_2 [style=invis]
    n6 -> n7
    n7 [label=\"E\"]
  }
}
```

INCORRECT

Expected: WHOVILLE

wretwetrwretert

## Question 1.2: Pre-Order

---

```
{
  "tree": "digraph {\n
    ranksep=0.25;\n
    node [shape=circle fontsize=18 margin=\"0.03,0.03\"]\n
    nedge [arrowsize=0.5]\n
    6 [label=\"L\"] --> 1 [arrowsize=0.5]\n
    1 [label=\"H\"] --> 0 [arrowsize=0.5]\n
    0 [label=\"W\"] --> invis_1_2 [label=\"\",width=.1,style=invis]\n
    invis_1_2 --> invis_1_2 [style=invis]\n
    invis_1_2 --> 4 [label=\"I\"]\n
    4 --> 3 [arrowsize=0.5]\n
    3 [label=\"V\"] --> 2 [arrowsize=0.5]\n
    2 [label=\"O\"] --> invis_3_2 [label=\"\",width=.1,style=invis]\n
    invis_3_2 --> invis_3_2 [style=invis]\n
    invis_3_2 --> invis_3_3 [label=\"\",width=.1,style=invis]\n
    invis_3_3 --> invis_3_3 [style=invis]\n
    invis_3_3 --> invis_4_2 [label=\"\",width=.1,style=invis]\n
    invis_4_2 --> invis_4_2 [style=invis]\n
    invis_4_2 --> 5 [label=\"L\"]\n
    5 --> invis_6_2 [label=\"\",width=.1,style=invis]\n
    invis_6_2 --> invis_6_2 [style=invis]\n
    invis_6_2 --> 7 [label=\"E\"]\n
  }
}
```

---

INCORRECT

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Expected: LHWIVOLE

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oraoraora

Question 1.3: Post-Order

---

```
{
  "tree": "digraph {\n
    ranksep=0.25;\n
    node [shape=circle fontsize=18 margin=\"0.03,0.03\"]\n
    nedge [arrowsize=0.5]\n
    6 [label=\"L\"] --> 1 [arrowsize=0.5]\n
    1 [label=\"H\"] --> 0 [arrowsize=0.5]\n
    0 [label=\"W\"] --> invis_1_2 [label=\"\",width=.1,style=invis]\n
    invis_1_2 --> invis_1_2 [style=invis]\n
    invis_1_2 --> 4 [label=\"I\"]\n
    4 --> 3 [arrowsize=0.5]\n
    3 [label=\"V\"] --> 2 [arrowsize=0.5]\n
    2 [label=\"O\"] --> invis_3_2 [label=\"\",width=.1,style=invis]\n
    invis_3_2 --> invis_3_2 [style=invis]\n
    invis_3_2 --> invis_3_3 [label=\"\",width=.1,style=invis]\n
    invis_3_3 --> invis_3_3 [style=invis]\n
    invis_3_3 --> invis_4_2 [label=\"\",width=.1,style=invis]\n
    invis_4_2 --> invis_4_2 [style=invis]\n
    invis_4_2 --> 5 [label=\"L\"]\n
    5 --> invis_6_2 [label=\"\",width=.1,style=invis]\n
    invis_6_2 --> invis_6_2 [style=invis]\n
    invis_6_2 --> 7 [label=\"E\"]\n
  }
}
```

INCORRECT

Expected: WHOVILLE

rerorerorero

#### Question 1.4: Level-Order

---

```
{
  "tree": "digraph {\n
    ranksep=0.25;\n
    node [shape=circle fontsize=18 margin=\"0.03,0.03\"]\n
    nedge [arrowsize=0.5]\n
    6 [label=\"L\"] --> 1 [arrowsize=0.5]\n
    1 [label=\"H\"] --> 0 [arrowsize=0.5]\n
    0 [label=\"W\"] --> invis_1_2 [label=\"\",width=.1,style=invis]\n
    invis_1_2 --> invis_1_2 [style=invis]\n
    invis_1_2 --> 4 [label=\"I\"]\n
    4 --> 3 [arrowsize=0.5]\n
    3 [label=\"V\"] --> 2 [arrowsize=0.5]\n
    2 [label=\"O\"] --> invis_3_2 [label=\"\",width=.1,style=invis]\n
    invis_3_2 --> invis_3_2 [style=invis]\n
    invis_3_2 --> invis_3_3 [label=\"\",width=.1,style=invis]\n
    invis_3_3 --> invis_3_3 [style=invis]\n
    invis_3_3 --> invis_4_2 [label=\"\",width=.1,style=invis]\n
    invis_4_2 --> invis_4_2 [style=invis]\n
    invis_4_2 --> 5 [label=\"L\"]\n
    5 --> invis_6_2 [label=\"\",width=.1,style=invis]\n
    invis_6_2 --> invis_6_2 [style=invis]\n
    invis_6_2 --> 7 [label=\"E\"]\n
  }
}
```

---

INCORRECT

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Expected: LHEWIVLO

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435345

## Question 2: h1\_2020S\_2a\_msamericana

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### Question 2.1: Array A

---

No context provided.

---

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---

[]

---

['F', 'G', 'H', 'M', 'K', 'T', 'D', 'B']

## Question 2.2: InvB

---

```
{"res1": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res2": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res3": [{"key": "a", "html": "line 4"}, {"key": "b", "html": "line 5"}, {"key": "c", "html": "line 6"}], "res4": [{"key": "a", "html": "$\\Theta(1)$"}, {"key": "b", "html": "$\\Theta(\\log n)$"}, {"key": "c", "html": "$\\Theta(n)$"}, {"key": "d", "html": "$\\Theta(n\\log n)$"}, {"key": "e", "html": "$\\Theta(n^2)$"}, {"key": "f", "html": "None of these answers is correct."}], "res5": [{"key": "a", "html": "inv B(i)"}, {"key": "b", "html": "inv A(i)}], "_required_file_names": ["playListAns.cpp"]}
```

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Expected:

---

Question 2.3: res1

---

a:inv A(i)b:inv B(i)c:fact Ad:fact Be:line 4f:line 5g:line 6

---

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---

Expected Answer(s)

---

b:inv B(i)c:fact Ad:fact B

---

[

"]



## Question 2.4: res2

---

```
[{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"},  
  
{"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}]
```

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Expected: {'key': 'c', 'html': 'fact A'}

---

b

### Question 2.5: res3

---

```
[{"key": "a", "html": "line 4"}, {"key": "b", "html": "line 5"}, {"key": "c", "html": "line 6"}]
```

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---

Expected: {'key': 'c', 'html': 'line 6'}

---

b

## Question 2.6: res4

---

[{"key": "a", "html": "\$\\Theta(1)\$"}, {"key": "b", "html": "\$\\Theta(\\log n)\$"}, {"key": "c", "html": "\$\\Theta(n)\$"}, {"key": "d", "html": "\$\\Theta(n\\log n)\$"}, {"key": "e", "html": "\$\\Theta(n^2)\$"}, {"key": "f", "html": "None of these answers is correct."}]

---

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---

Expected: {'key': 'e', 'html': '\$\\Theta(n^2)\$'}

---

b

## Question 2.7: res5

---

```
[{"key": "a", "html": "inv B(i)"}, {"key": "b", "html": "inv A(i)"}]
```

---

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---

Expected: {'key': 'b', 'html': 'inv A(i)'}

---

b

## Question 2.8: InvAL

---

No context provided.

---

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---

No expected answer provided.

---

InvAL: 5

Variables: []

## Question 2.9: InvAU

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

InvAU: 5

Variables: []

Question 2.10: variL

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

variL: 4

Variables: []

Question 2.11: variU

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

variU: 5

Variables: []



## Question 2.12: basecase

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

basecase: 345

Variables: []

Question 2.13: iteration

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

iteration: 0

Variables: []

## Question 2.14: findNextTrueL

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

findNextTrueL: 2

Variables: []

## Question 2.15: findNextTrueU

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

findNextTrueU: 0

Variables: []

## Question 2.16: findNextFalseL

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

findNextFalseL: 243

Variables: []

## Question 2.17: findNextFalseU

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

findNextFalseU: 243

Variables: []

## Question 2.18: findNextFunTrue

---

```
{"res1": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res2": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res3": [{"key": "a", "html": "line 4"}, {"key": "b", "html": "line 5"}, {"key": "c", "html": "line 6"}], "res4": [{"key": "a", "html": "$\\Theta(1)$"}, {"key": "b", "html": "$\\Theta(\\log n)$"}, {"key": "c", "html": "$\\Theta(n)$"}, {"key": "d", "html": "$\\Theta(n\\log n)$"}, {"key": "e", "html": "$\\Theta(n^2)$"}, {"key": "f", "html": "None of these answers is correct."}], "res5": [{"key": "a", "html": "inv B(i)"}, {"key": "b", "html": "inv A(i)"}], "_required_file_names": ["playlistAns.cpp"]}
```

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Expected:

---

## Question 2.19: findNextFunFalse

---

```
{"res1": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res2": [{"key": "a", "html": "inv A(i)"}, {"key": "b", "html": "inv B(i)"}, {"key": "c", "html": "fact A"}, {"key": "d", "html": "fact B"}, {"key": "e", "html": "line 4"}, {"key": "f", "html": "line 5"}, {"key": "g", "html": "line 6"}], "res3": [{"key": "a", "html": "line 4"}, {"key": "b", "html": "line 5"}, {"key": "c", "html": "line 6"}], "res4": [{"key": "a", "html": "$\\Theta(1)$"}, {"key": "b", "html": "$\\Theta(\\log n)$"}, {"key": "c", "html": "$\\Theta(n)$"}, {"key": "d", "html": "$\\Theta(n\\log n)$"}, {"key": "e", "html": "$\\Theta(n^2)$"}, {"key": "f", "html": "None of these answers is correct."}], "res5": [{"key": "a", "html": "inv B(i)"}, {"key": "b", "html": "inv A(i)"}], "_required_file_names": ["playListAns.cpp"]}
```

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Expected:

---



Question 2.20: required\_files

---

No context provided.

---

PARTIAL

---

No expected answer provided.

---

## Question 2: lq02\_2a\_bestworst

---

### Question 2.1: students

---

["key": "a", "html": "\n The best case running time of this function is  $\Omega(n)$ .\n "], [{"key": "b", "html": "\n

The worst case running time of this function is  $\Omega(n)$ .\n "}]

---

INCORRECT

---

Expected: [{"key": "b", "html": "\n The worst case running time of this function is  $\Omega(n)$ .\n "}]

---

a

## Question 1: lq03\_1a\_inssortitnum

---

### Question 1.1: int\_value

---

`{"a": [14, 42, 95, 95, 95, 30, 97, 95, 91, 21, 76, 82, 57, 61, 0, 56]}`

---

INCORRECT

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Expected: 5

---