

61. Minimum Time to collect all apples in a Tree.

Program:

```
def min_time_to_collect_apples(n, edges, has_apple):

    graph = {i: [] for i in range(n)}

    for edge in edges:

        graph[edge[0]].append(edge[1])

        graph[edge[1]].append(edge[0])

    def dfs(node):

        total_time = 0

        for neighbor in graph[node]:

            if not visited[neighbor]:

                visited[neighbor] = True

                time = dfs(neighbor)

                if time > 0 or has_apple[neighbor]:

                    total_time += 2 + time

        return total_time

    visited = [False] * n
```

```

    visited[0] = True

    return dfs(0)

print(min_time_to_collect_apples(7,[[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]],
[False,False,True,False,True,True,False])) # Output: 8

```

Output:

The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for running and debugging. The Structure pane on the left shows the function `min_time_to_collect_apples(n, edges, visited)` with a sub-entry for `dfs(node)`. The main editor displays the code from the previous block. The Run pane at the bottom shows the command prompt output: `"C:\Program Files\Python311\python.exe" C:\Users\shoba\PycharmProjects\pythonProject2\tut1457.py` followed by the output `8` and the message `Process finished with exit code 0`. The bottom status bar indicates the file is `tut1457.py` in the `pythonProject2` directory, using Python 3.11.