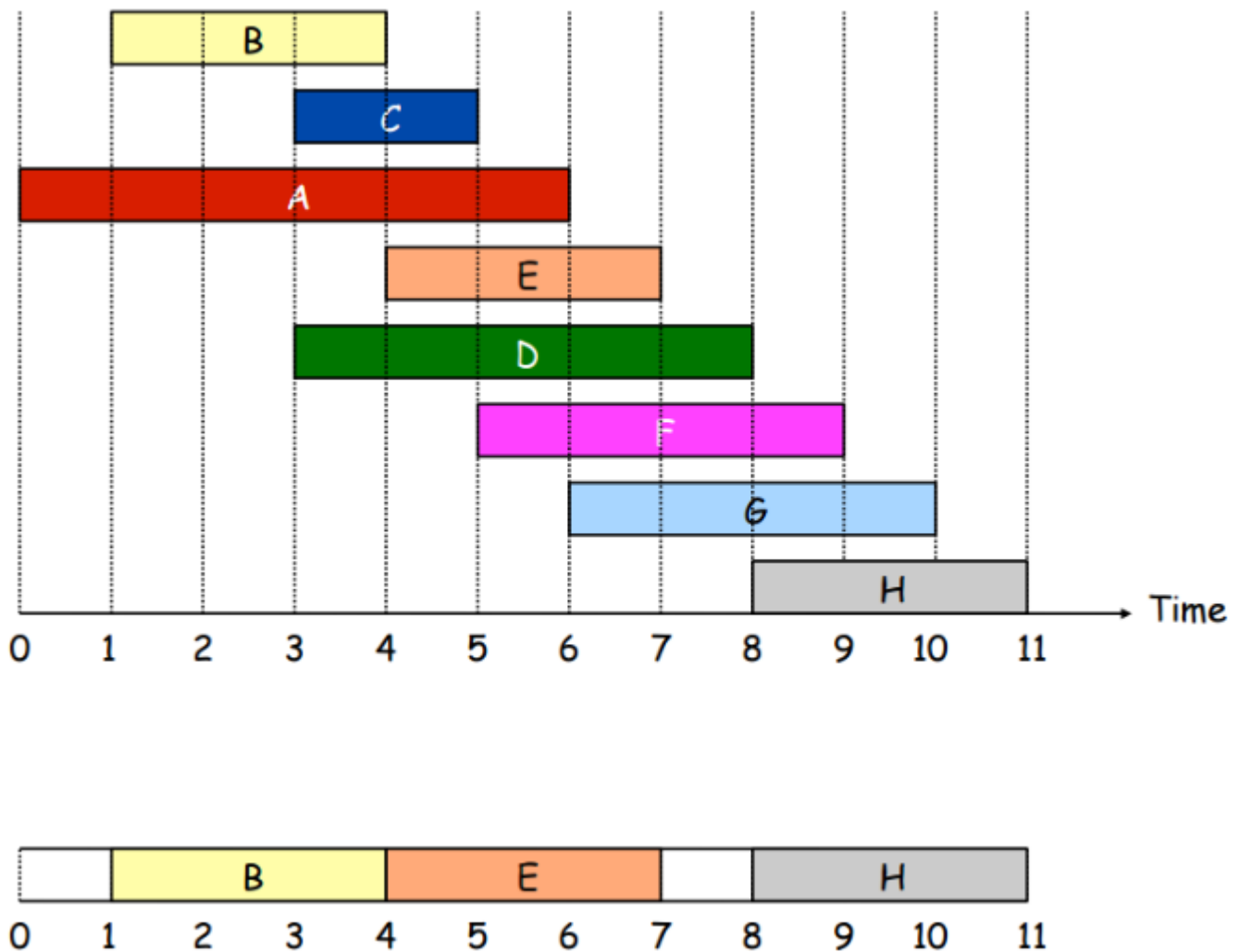


The Interval Scheduling Algorithm is a greedy algorithm used to solve the Interval Scheduling Problem. This problem involves selecting the maximum number of non-overlapping intervals from a given set of intervals.



Here's the step-by-step algorithm for the Interval Scheduling Algorithm:

1. Sort the intervals based on their end points in non-decreasing order.
2. Initialize an empty list called `selected_intervals` to store the selected intervals.
3. Initialize a variable `end_time` to negative infinity.
4. Iterate through the sorted intervals:
  - If the start time of the current interval is greater than or equal to `end_time`, it means the interval is compatible and can be selected.
    - Add the current interval to `selected_intervals`.
    - Update `end_time` to the end time of the current interval.
5. After the loop ends, `selected_intervals` will contain the maximum number of non-overlapping intervals.

Here's the implementation of the Interval Scheduling Algorithm in Python:

```
def intervalScheduling(intervals):
    intervals.sort(key=lambda x: x[1]) # Sort intervals based on their end points
    selected_intervals = []
    end_time = float('-inf')

    for interval in intervals:
        if interval[0] >= end_time:
            selected_intervals.append(interval)
            end_time = interval[1]

    return selected_intervals
```

Now, let's say we have the following set of intervals:

```
intervals = [[1, 3], [2, 4], [3, 6], [5, 7], [8, 10], [9, 11]]
```

If we run the Interval Scheduling Algorithm on this set of intervals:

```
selected = intervalScheduling(intervals)
print(selected)
```

The output will be:

```
[[1, 3], [5, 7], [8, 10]]
```

These are the maximum number of non-overlapping intervals that can be selected from the given set.

The time complexity of the Interval Scheduling Algorithm is  $O(n \log(n))$ , where  $n$  is the number of intervals. This is because the algorithm involves sorting the intervals. The space complexity is  $O(n)$ , as we store the selected intervals in the `selected_intervals` list, which can have a maximum of  $n$  intervals.

