Algorithmics	Student information	Date	Number of session
	UO:275688	19/04/21	6
	Surname: Fernández Esparta		
	Name: Mikel		

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Activity 1. [Implementation]

```
Number of songs: 10

List of songs:
id: 3ld4R7 seconds: 267 score: 3475
id: 8j4gE3 seconds: 322 score: 2834
id: 0fmvy3 seconds: 280 score: 3842
id: 8id4R7 seconds: 267 score: 3475
id: 9u4gE3 seconds: 419 score: 2834
id: 2lsdf9 seconds: 202 score: 3842
id: 3j4yQ6 seconds: 302 score: 2834
id: 06rwq3 seconds: 288 score: 3842
id: 87UKo2 seconds: 207 score: 3475
id: 5rtZe9 seconds: 284 score: 2834

Length of the blocks: 2838 seconds
Total score: 33287

Best block A:
id: 3ld4R7 seconds: 267 score: 3475
id: 8j4gE3 seconds: 322 score: 2834
id: 0fmvy3 seconds: 280 score: 3842
id: 8id4R7 seconds: 267 score: 3475
id: 9u4gE3 seconds: 419 score: 2834
id: 2lsdf9 seconds: 202 score: 3842
id: 3j4yQ6 seconds: 302 score: 2834
id: 06rwq3 seconds: 288 score: 3842
id: 87UKo2 seconds: 207 score: 3475
id: 5rtZe9 seconds: 284 score: 2834
```

```java
@Override
public void calculateHeuristicValue() {
    int value = this.score;

    for(int i = level; i < songs.length; i++){
        if(blocks[0] + songs[i].getDuration() <= maxDuration){
            blocks[i] += songs[i].getDuration();
            value += songs[i].getScore();
        }
        if(level == songs.length){
            valueHeuristic -= value;
        }
        else{
            value -= songs[i].getScore();
        }
    }
    valueHeuristic = Spotify.getTotalScore() - value;
}
```

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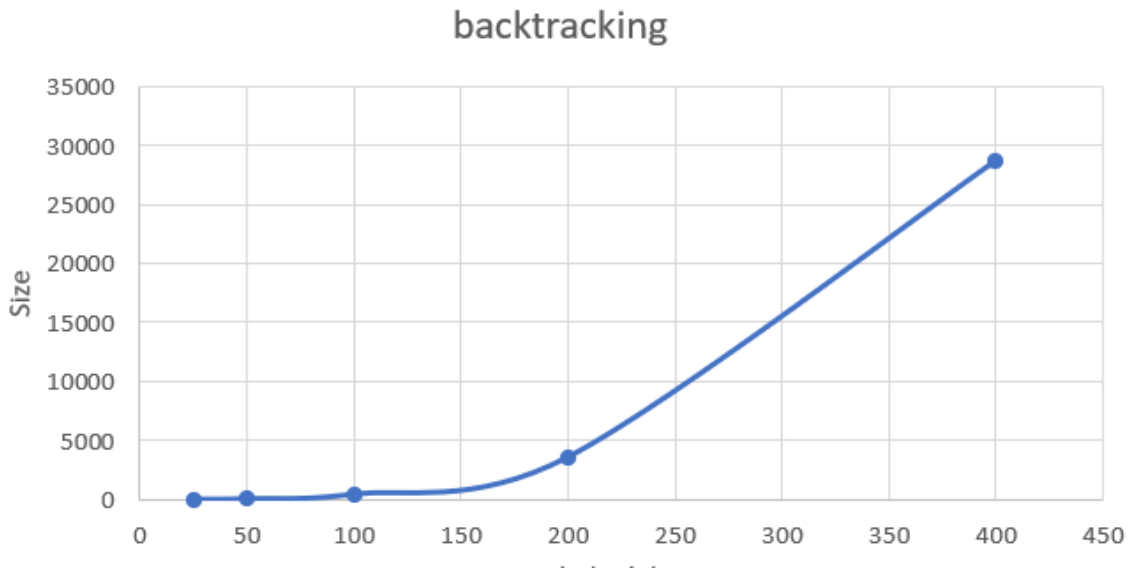
Activity 2. [Measurements]

Because of the bad complexity for branch and bound is, it doesn't compute the values because of how high they are

n	backtracking	branch and bound
25	7	5
50	56	3125
100	448	#¡NUM!
200	3584	#¡NUM!
400	28672	#¡NUM!



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Backtracking is more efficient and also much faster than using brute force, therefore it is better than Branch and Bound, which is instead used if we only search the first solution and that solution is near the root, in that case Branch and Bound would be optimal. When having to develop the whole tree Backtracking is much better.