| Algorithmics | Student information | Date | Number of session |
|---|---|---|---|
| | UO:293175 | 21/2/2022 | 1.2 |
| | Surname: YILDIRIM | | |
| | Name:Kutay | | |

Escuela de Ingeniería Informática
Universidad de Oviedo

Universidad de Oviedo
Universidá d'Uviéu
University of Oviedo

# Activity 1. Two Algorithms with the same complexity

| N | Loop2(t) | Loop3(t) | Loop2(t)/loop3(t) |
|---|---|---|---|
| 16 | 0 | 1 | 0 |
| 32 | 2 | 0 | ? |
| 64 | 5 | 3 | 1.66 |
| 128 | 15 | 12 | 1.25 |
| 256 | 60 | 30 | 2 |

The implementation constant is bigger than 1 that means that the one in the denominator is better.

# Activity 2. Two Algorithms with different complexity

| N | Loop1(t) | Loop2(t) | Loop1(t)/loop2(t) |
|---|---|---|---|
| 16 | 0 | 1 | 0 |
| 32 | 0 | 2 | 0 |
| 64 | 1 | 6 | 0.166 |
| 128 | 1 | 15 | 0.066 |
| 256 | 4 | 60 | 0.066 |

Since the ratio tends to zero the one associated with the numerator is the least complex. And that is the best.

| Algorithmics | Student information | Date | Number of session |
|---|---|---|---|
| | UO:293175 | 21/2/2022 | 1.2 |
| | Surname: YILDIRIM | | |
| | Name:Kutay | | |

# Activity 3. Complexity of other Algorithms

| N | Loop4(t) | Loop5(t) | Loop4(t)/loop5(t) |
|---|---|---|---|
| 8 | 1 | 7 | 0.142 |
| 16 | 6 | 63 | 0.095 |
| 32 | 30 | 931 | 0.032 |
| 64 | 228 | 14625 | 0.015 |

Since the ratio tends to zero the one associated with the numerator is the least complex. And that is the best.

# Activity 4. Study of unknown.java

The complexity of unknown.java is O(n^3). And run times are like the table below.

| N | Unknown.java |
|---|---|
| 16 | 0 |
| 32 | 2 |
| 64 | 2 |
| 128 | 4 |
| 256 | 20 |