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Grade

Algorithmics
Undergraduate $2^{\text {nd }}$ year - S3
Midterm \#3 (C3)
9 November 2020-13:30
Answer Sheets

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## Answers 1 (Some different results - 5 points)

Draw the hash tables corresponding to the different collision resolution methods:

1. Coalesced hashing:

2. Linear probing:

3. Double hashing:


## Answers 2 (Find the sum -4 points)

## Specifications:

The function find_sum ( $B$, sum) tests if there exists a branch in the tree $B$ (TreeAsBin) such that the sum of its values (integers) is equal to sum.

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## Answers 3 (Maximum Gap - 4 points)

Specifications: The function maxgap $(B)$ computes the maximum gap of the B-tree $B$.


## Answers 4 (What? - 4 points)

1. Application results:

| what $\left(B_{3}, 2\right)$ | what $\left(B_{3}, 7\right)$ | what $\left(B_{3}, 18\right)$ | what $\left(B_{3}, 39\right)$ | what $\left(B_{3}, 41\right)$ | what $\left(B_{3}, 99\right)$ |
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2. Let $B$ be a non empty B-tree and $x$ an integer. What does what $(B, x)$ return?

## Answers 5 (B-tree: insertion and deletion - 3 points)

1. Tree after the insertion of the value 39 (you can tilt the sheet and draw the tree in landscape format):
2. Tree after the deletion of the value 72 (you can tilt the sheet and draw the tree in landscape format):
