I

Let R and S be 2 relations. R has 10.000 records; a page can hold 10 R records. S has 2.000 records; a page can hold 10 S records.

1. 52 buffer pages are available. Compute the cost of:

SELECT *
FROM R INNER JOIN S ON R.a = S.b

using *page-oriented nested loops join* and *block nested loops join*; S is the outer relation.

Let R and S be 2 relations. R has 10.000 records; a page can hold 10 R records. S has 2.000 records; a page can hold 10 S records.

2. Compute the cost of sorting R using *external merge sort* with 200 buffer pages.

Let R and S be 2 relations. R has 10.000 records; a page can hold 10 R records. S has 2.000 records; a page can hold 10 S records.

3. R is stored at București, S is stored at Cluj-Napoca. Compute the cost of:

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SELECT *
FROM R INNER JOIN S ON R.a = S.b
```

using *simple nested loops join (tuple-oriented)* in Cluj-Napoca, without caching; S is the outer relation.

4. Encode the data *de gustibus non disputandum* using the secret encryption key *metallica* and the table of codes below. Write the last 5 characters in the result.

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	-
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27