

Project 3 - Andrew Cash

Encrypted COMPANY

Due at the beginning of the class, Wednesday, December 1, 2021
Submitted to Blackboard by the beginning of the class

```
SELECT
    first_name, mid_initial, last_name,
    salary, salary_in_thousands, encrypted_salary_in_thousands
FROM Employee
WHERE salary_in_thousands = 38
OR salary_in_thousands = 55
```

first_name	mid_initial	last_name	salary	salary_in_thousands	encrypted_salary_in_thousands
Ramesh	K	Narayan	38000.00	38	1000397
James	E	Borg	55000.00	55	644284

2 rows (0.000 s) [Edit](#), [Explain](#), [Export](#)

```
--
-- Question 1
SELECT sum(salary) FROM Employee
```

sum(salary)
281000.00

1 row (0.001 s) [Edit](#), [Explain](#), [Export](#)

```
-- Question 2
SELECT sum(salary_in_thousands) * 1000 FROM Employee
```

sum(salary_in_thousands) * 1000
281000

1 row (0.000 s) [Edit](#), [Explain](#), [Export](#)

```
-- Question 3
SELECT encrypted_salary_in_thousands FROM Employee
```

encrypted_salary_in_thousands
130596
1443880
2558310
1000397
644284
2275827
2558310
2558310

8 rows (0.000 s) [Edit](#), [Explain](#), [Export](#)



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MULTIPLICATION

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MULTIPLICATION OF 2 NUMBERS

★ **NUMBER 1**

★ **NUMBER 2**

MULTIPLY

See also: [Division](#) — [Exponentiation \(Power\)](#)

MULTIPLY MANY NUMBERS

★ **MULTIPLY MANY NUMBERS**

	Numbers
1	130596
2	1443880
3	2558310
4	1000397
5	644284
6	2275827

MULTIPLY

Result - 4631369740004513994323266852974722556801233280000

Paillier Encrypt Message

G Value g (g):

63

R Value r (r):

136

N Value n (n):

1763

Message Value m (m):

38

$[c] = g^m r^n \text{ MOD } n^2 =$

1000397

CALCULATE

CLEAR

Decode:

Paillier Decrypt Message

Ciphertext Value c (c):

2974722556801233280000

λ (lambda) Value λ (λ):

840

N Value n (n):

1763

μ (Mu) Value μ (μ):

26

$[m] = L(c^\lambda \text{ MOD } n^2) \cdot \mu \text{ MOD } n =$

281

CALCULATE

CLEAR

$$m = 281 * 1000 = 281000$$