

DBMS – SOLUTIONS TO ASSIGNMENT 1

1. Here follows the program:

```
import re
def validate_phone(phone):
    pattern = r'^\d{3}-\d{8}$'
    if re.fullmatch(pattern, phone):
        return True
    else:
        return False
```

Test the program in the following way:

```
phone = input("Enter a phone number: ")
if validate_phone(phone):
    print("VALID")
else:
    print("INVALID")
```

2. For arbitrary relations, without assumption on keys, tighter bounds are as follows:

- (i) $\min = 0$, $\max = \min(t_1, t_2, t_3) + ((n - t_1 + 1) * (n - t_2 + 1) * (n - t_3 + 1))$.
- (ii) $\min = 0$, $\max = \min(t_1, t_2, t_3)$.
- (iii) $\min = \max(t_1, t_2, t_3)$, $\max = t_1 + t_2 + t_3$.
- (iv) $\min = \max = n$.