```
In [3]: !pip install gymnasium
        import gymnasium as gym
        import random
        import numpy as np
        import os
```

```
Collecting gymnasium
  Using cached gymnasium-1.2.2-py3-none-any.whl.metadata (10 kB)
Requirement already satisfied: numpy>=1.21.0 in c:\users\karth\appdata\roaming\
python\python312\site-packages (from gymnasium) (1.26.4)
Requirement already satisfied: cloudpickle>=1.2.0 in c:\users\karth\appdata\loc
al\programs\python\python312\lib\site-packages (from gymnasium) (3.1.1)
Requirement already satisfied: typing-extensions>=4.3.0 in c:\users\karth\appda
ta\roaming\python\python312\site-packages (from gymnasium) (4.12.2)
Collecting farama-notifications>=0.0.1 (from gymnasium)
  Using cached Farama_Notifications-0.0.4-py3-none-any.whl.metadata (558 bytes)
Using cached gymnasium-1.2.2-py3-none-any.whl (952 kB)
Using cached Farama_Notifications-0.0.4-py3-none-any.whl (2.5 kB)
Installing collected packages: farama-notifications, gymnasium
Successfully installed farama-notifications-0.0.4 gymnasium-1.2.2
```

```
In [30]: env = gym.make('FrozenLake-v1',is_slippery=False,render_mode='human')

         num_actions = env.action_space.n
         num_states = env.observation_space.n
         q_table = np.zeros((num_states,num_actions))
```

```
In [31]: alpha = 0.8 #lr
         gamma = 0.95 #disc

         max_ep = 1.0
         min_ep = 0.01
         decay_rate = 0.001
```

```
In [32]: rewards = []
         epsilon = max_ep
         n, max_steps = 1000, 30

         for episode in range(2):
             s, _ = env.reset()   # ✅ returns (state, info)
             total_reward = 0
             for i in range(max_steps):
                 a = env.action_space.sample()


                 s_new, r, done, truncated, info = env.step(a)  # ✅ unpack all 5 value

                 q_table[s][a] = q_table[s][a] + alpha * (
                     r + gamma * np.max(q_table[s_new]) - q_table[s][a]
                 )
```

```python
        print("Q Table :")
        print(q_table)

        s = s_new
        total_reward += r
        if done or truncated:    # ✅ handle both cases
            rewards.append(total_reward)
            epsilon = min_ep + (max_ep - min_ep) * np.exp(-decay_rate * episod
            break
```

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Q Table :
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```

In [33]: `env.close()`

In [ ]:

In [ ]:

In [ ]:

In [ ]: