6.2

In [55]:
```
P1 = 'This is a known message!\n'
C1 = 'a469b1c502c1cab966965e50425438e1bb1b5f9037a4c15913'
```

In [56]:
```
P2 = '?'
C2 = 'bf73bcd3509299d566c35b5d450337e1bb175f903fafc15913'
```

Parse Message

In [57]:
```
import bitarray
```

In [58]:
```
ba = bitarray.bitarray()
ba.frombytes(P1.encode('utf-8'))
P1_binary = list(ba)
```

In [59]:
```
C1_binary = [True if b == '1' else False for b in bin(int(C1, 16))[2:]]
```

IV

In [60]:
```
IV = [C1_binary[c] != P1_binary[c] for c in range(len(C1_binary))]
```

Translation

In [61]:
```
C2_binary = [True if b == '1' else False for b in bin(int(C2, 16))[2:]]
```

In [62]:
```
P2_binary = [C2_binary[c] != IV[c] for c in range(len(C2_binary))]
P2_binary_str = ''
for p in P2_binary:
    if p == True:
        P2_binary_str += '1'
    else:
        P2_binary_str += '0'
```

In [63]:
```
P2_hex = hex(int(P2_binary_str, 2))[2:]
```

In [64]:
```
P2 = bytearray.fromhex(P2_hex).decode()
P2
```

Out[64]:
```
'Order: Launch a missile!\n'
```