```
################################################################

  Block Cipher Modes of Operation

      Electronic Codebook (ECB)

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

################################################################

ECB-AES128 (Encryption)
----------------------------------------------------------------

Key is
    2B7E1516 28AED2A6 ABF71588 09CF4F3C

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

  Block #1
    Plaintext     6BC1BEE2 2E409F96 E93D7E11 7393172A
    InputBlock    6BC1BEE2 2E409F96 E93D7E11 7393172A
    OutputBlock   3AD77BB4 0D7A3660 A89ECAF3 2466EF97
    Ciphertext    E800807C 28FE1200 02000000 60FE1200
  Block #2
    Plaintext     AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    InputBlock    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    OutputBlock   F5D3D585 03B9699D E785895A 96FDBAAF
    Ciphertext    9508917C 0000807C 00000000 29000000
  Block #3
    Plaintext     30C81C46 A35CE411 E5FBC119 1A0A52EF
    InputBlock    30C81C46 A35CE411 E5FBC119 1A0A52EF
    OutputBlock   43B1CD7F 598ECE23 881B00E3 ED030688
    Ciphertext    9C9A917C 0000807C C2FE1200 BCFE1200
  Block #4
    Plaintext     F69F2445 DF4F9B17 AD2B417B E66C3710
    InputBlock    F69F2445 DF4F9B17 AD2B417B E66C3710
    OutputBlock   7B0C785E 27E8AD3F 82232071 04725DD4
    Ciphertext    48033300 C2FE1200 3F9B917C D8C0977C
```

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Ciphertext is
    3AD77BB4 0D7A3660 A89ECAF3 2466EF97
    F5D3D585 03B9699D E785895A 96FDBAAF
    43B1CD7F 598ECE23 881B00E3 ED030688
    7B0C785E 27E8AD3F 82232071 04725DD4

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ECB-AES128 (Decryption)
----------------------------------------------------------------

Key is
    2B7E1516 28AED2A6 ABF71588 09CF4F3C

Ciphertext is
    3AD77BB4 0D7A3660 A89ECAF3 2466EF97
    F5D3D585 03B9699D E785895A 96FDBAAF
    43B1CD7F 598ECE23 881B00E3 ED030688
    7B0C785E 27E8AD3F 82232071 04725DD4

  Block #1
    Ciphertext    3AD77BB4 0D7A3660 A89ECAF3 2466EF97
    InputBlock    3AD77BB4 0D7A3660 A89ECAF3 2466EF97
    OutputBlock   6BC1BEE2 2E409F96 E93D7E11 7393172A
    Plaintext     EB9A917C 70854100 02000000 FFFF0000
  Block #2
    Ciphertext    F5D3D585 03B9699D E785895A 96FDBAAF
    InputBlock    F5D3D585 03B9699D E785895A 96FDBAAF
    OutputBlock   AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    Plaintext     00F0FD7F C01F2500 B4B5B6B7 30363300
  Block #3
    Ciphertext    43B1CD7F 598ECE23 881B00E3 ED030688
    InputBlock    43B1CD7F 598ECE23 881B00E3 ED030688
    OutputBlock   30C81C46 A35CE411 E5FBC119 1A0A52EF
    Plaintext     DC31917C 11000000 6CFF1200 00000004
  Block #4
    Ciphertext    7B0C785E 27E8AD3F 82232071 04725DD4
    InputBlock    7B0C785E 27E8AD3F 82232071 04725DD4
    OutputBlock   F69F2445 DF4F9B17 AD2B417B E66C3710
    Plaintext     04000000 C0FE1200 C0FE1200 00000000

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
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    F69F2445 DF4F9B17 AD2B417B E66C3710

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ECB-AES192 (Encryption)
--------------------------------------------------------------

Key is
    8E73B0F7 DA0E6452 C810F32B 809079E5
    62F8EAD2 522C6B7B

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

  Block #1
    Plaintext     6BC1BEE2 2E409F96 E93D7E11 7393172A
    InputBlock    6BC1BEE2 2E409F96 E93D7E11 7393172A
    OutputBlock   BD334F1D 6E45F25F F712A214 571FA5CC
    Ciphertext    3AD77BB4 0D7A3660 A89ECAF3 2466EF97
  Block #2
    Plaintext     AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    InputBlock    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    OutputBlock   97410484 6D0AD3AD 7734ECB3 ECEE4EEF
    Ciphertext    F5D3D585 03B9699D E785895A 96FDBAAF
  Block #3
    Plaintext     30C81C46 A35CE411 E5FBC119 1A0A52EF
    InputBlock    30C81C46 A35CE411 E5FBC119 1A0A52EF
    OutputBlock   EF7AFD22 70E2E60A DCE0BA2F ACE6444E
    Ciphertext    43B1CD7F 598ECE23 881B00E3 ED030688
  Block #4
    Plaintext     F69F2445 DF4F9B17 AD2B417B E66C3710
    InputBlock    F69F2445 DF4F9B17 AD2B417B E66C3710
    OutputBlock   9A4B41BA 738D6C72 FB166916 03C18E0E
    Ciphertext    7B0C785E 27E8AD3F 82232071 04725DD4

Ciphertext is
    BD334F1D 6E45F25F F712A214 571FA5CC
    97410484 6D0AD3AD 7734ECB3 ECEE4EEF
    EF7AFD22 70E2E60A DCE0BA2F ACE6444E
    9A4B41BA 738D6C72 FB166916 03C18E0E
```

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ECB-AES192 (Decryption)
----------------------------------------------------------

Key is
    8E73B0F7 DA0E6452 C810F32B 809079E5
    62F8EAD2 522C6B7B

Ciphertext is
    BD334F1D 6E45F25F F712A214 571FA5CC
    97410484 6D0AD3AD 7734ECB3 ECEE4EEF
    EF7AFD22 70E2E60A DCE0BA2F ACE6444E
    9A4B41BA 738D6C72 FB166916 03C18E0E

  Block #1
    Ciphertext    BD334F1D 6E45F25F F712A214 571FA5CC
    InputBlock    BD334F1D 6E45F25F F712A214 571FA5CC
    OutputBlock   6BC1BEE2 2E409F96 E93D7E11 7393172A
    Plaintext     6BC1BEE2 2E409F96 E93D7E11 7393172A
  Block #2
    Ciphertext    97410484 6D0AD3AD 7734ECB3 ECEE4EEF
    InputBlock    97410484 6D0AD3AD 7734ECB3 ECEE4EEF
    OutputBlock   AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    Plaintext     AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
  Block #3
    Ciphertext    EF7AFD22 70E2E60A DCE0BA2F ACE6444E
    InputBlock    EF7AFD22 70E2E60A DCE0BA2F ACE6444E
    OutputBlock   30C81C46 A35CE411 E5FBC119 1A0A52EF
    Plaintext     30C81C46 A35CE411 E5FBC119 1A0A52EF
  Block #4
    Ciphertext    9A4B41BA 738D6C72 FB166916 03C18E0E
    InputBlock    9A4B41BA 738D6C72 FB166916 03C18E0E
    OutputBlock   F69F2445 DF4F9B17 AD2B417B E66C3710
    Plaintext     F69F2445 DF4F9B17 AD2B417B E66C3710

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

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ECB-AES256 (Encryption)
----------------------------------------------------------------

Key is
    603DEB10 15CA71BE 2B73AEF0 857D7781
    1F352C07 3B6108D7 2D9810A3 0914DFF4

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

  Block #1
    Plaintext     6BC1BEE2 2E409F96 E93D7E11 7393172A
    InputBlock    6BC1BEE2 2E409F96 E93D7E11 7393172A
    OutputBlock   F3EED1BD B5D2A03C 064B5A7E 3DB181F8
    Ciphertext    BD334F1D 6E45F25F F712A214 571FA5CC
  Block #2
    Plaintext     AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    InputBlock    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    OutputBlock   591CCB10 D410ED26 DC5BA74A 31362870
    Ciphertext    97410484 6D0AD3AD 7734ECB3 ECEE4EEF
  Block #3
    Plaintext     30C81C46 A35CE411 E5FBC119 1A0A52EF
    InputBlock    30C81C46 A35CE411 E5FBC119 1A0A52EF
    OutputBlock   B6ED21B9 9CA6F4F9 F153E7B1 BEAFED1D
    Ciphertext    EF7AFD22 70E2E60A DCE0BA2F ACE6444E
  Block #4
    Plaintext     F69F2445 DF4F9B17 AD2B417B E66C3710
    InputBlock    F69F2445 DF4F9B17 AD2B417B E66C3710
    OutputBlock   23304B7A 39F9F3FF 067D8D8F 9E24ECC7
    Ciphertext    9A4B41BA 738D6C72 FB166916 03C18E0E

Ciphertext is
    F3EED1BD B5D2A03C 064B5A7E 3DB181F8
    591CCB10 D410ED26 DC5BA74A 31362870
    B6ED21B9 9CA6F4F9 F153E7B1 BEAFED1D
    23304B7A 39F9F3FF 067D8D8F 9E24ECC7

================================================================

ECB-AES256 (Decryption)
----------------------------------------------------------------

Key is
```

```
    603DEB10 15CA71BE 2B73AEF0 857D7781
    1F352C07 3B6108D7 2D9810A3 0914DFF4

Ciphertext is
    F3EED1BD B5D2A03C 064B5A7E 3DB181F8
    591CCB10 D410ED26 DC5BA74A 31362870
    B6ED21B9 9CA6F4F9 F153E7B1 BEAFED1D
    23304B7A 39F9F3FF 067D8D8F 9E24ECC7

  Block #1
    Ciphertext    F3EED1BD B5D2A03C 064B5A7E 3DB181F8
    InputBlock    F3EED1BD B5D2A03C 064B5A7E 3DB181F8
    OutputBlock   6BC1BEE2 2E409F96 E93D7E11 7393172A
    Plaintext     6BC1BEE2 2E409F96 E93D7E11 7393172A
  Block #2
    Ciphertext    591CCB10 D410ED26 DC5BA74A 31362870
    InputBlock    591CCB10 D410ED26 DC5BA74A 31362870
    OutputBlock   AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    Plaintext     AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
  Block #3
    Ciphertext    B6ED21B9 9CA6F4F9 F153E7B1 BEAFED1D
    InputBlock    B6ED21B9 9CA6F4F9 F153E7B1 BEAFED1D
    OutputBlock   30C81C46 A35CE411 E5FBC119 1A0A52EF
    Plaintext     30C81C46 A35CE411 E5FBC119 1A0A52EF
  Block #4
    Ciphertext    23304B7A 39F9F3FF 067D8D8F 9E24ECC7
    InputBlock    23304B7A 39F9F3FF 067D8D8F 9E24ECC7
    OutputBlock   F69F2445 DF4F9B17 AD2B417B E66C3710
    Plaintext     F69F2445 DF4F9B17 AD2B417B E66C3710

Plaintext is
    6BC1BEE2 2E409F96 E93D7E11 7393172A
    AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
    30C81C46 A35CE411 E5FBC119 1A0A52EF
    F69F2445 DF4F9B17 AD2B417B E66C3710

************************************************************
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