

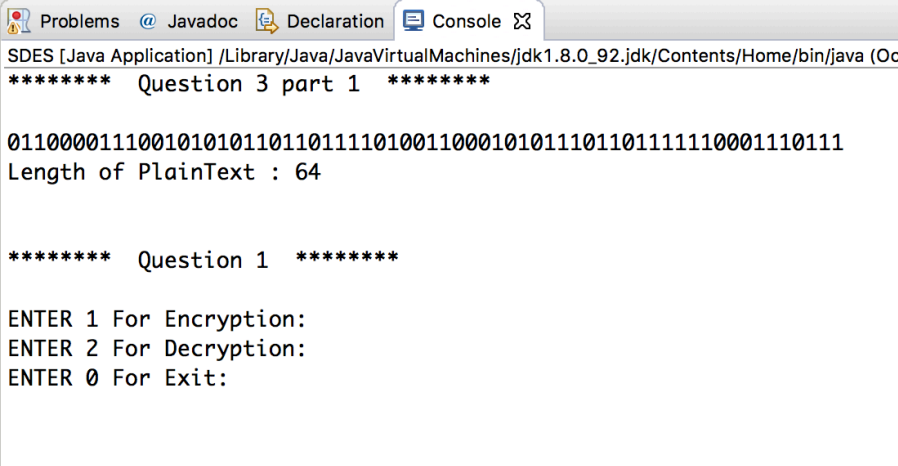
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Step 1:

Download the file CASCII.java in order to run files Message1 and Message2 also to answer question 3 part 1.

Step 2:

Run first file which is SDES.java for answering first question. You will have the answer for question 3 part 1. Also, you will have 3 options: enter 1 for encryption, 2 for decryption, or 3 for Exit.



```
Problems Javadoc Declaration Console
SDES [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jdk/Contents/Home/bin/java (Oc
***** Question 3 part 1 *****

01100001110010101011011101110100110001010111011111110001110111
Length of PlainText : 64

***** Question 1 *****

ENTER 1 For Encryption:
ENTER 2 For Decryption:
ENTER 0 For Exit:
```

***** Question 1 *****

ENTER 1 For Encryption:

ENTER 2 For Decryption:

ENTER 0 For Exit:

1

***** Encryption *****

Enter 10-bit Key for Encryption: 0000000000

Enter 8-bit Plaintext for Encryption: 00000000

Your Ciphertext is: 11110000

***** Encryption *****

Enter 10-bit Key for Encryption: 1111111111

Enter 8-bit Plaintext for Encryption: 11111111

Your Ciphertext is: 00001111

***** Encryption *****

Enter 10-bit Key for Encryption: 0000011111

Enter 8-bit Plaintext for Encryption: 00000000

Your Ciphertext is: 01000011

***** Encryption *****

Enter 10-bit Key for Encryption: 0000011111

Enter 8-bit Plaintext for Encryption: 11111111

Your Ciphertext is: 11100001

***** Question 1 *****

ENTER 1 For Encryption:

ENTER 2 For Decryption:

ENTER 0 For Exit:

2

***** Decryption *****

Enter 10-bit Key for Decryption: 1000101110

Enter 8-bit ciphertext for Decryption: 00011100

Your Plaintext is: 00111000

***** Decryption *****

Enter 10-bit Key for Decryption: 1000101110

Enter 8-bit ciphertext for Decryption: 11000010

Your Plaintext is: 00001100

***** Decryption *****

Enter 10-bit Key for Decryption: 0010011111

Enter 8-bit ciphertext for Decryption: 10011101

Your Plaintext is: 11111100

***** Decryption *****

Enter 10-bit Key for Decryption: 0010011111

Enter 8-bit ciphertext for Decryption: 10010000

Your Plaintext is: 10100101

Problems Javadoc Declaration Console

<terminated> SDES [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jdk/Contents/t

***** Question 3 part 1 *****

011000011100101010110111011101001100010101110110111110001110111

Length of PlainText : 64

***** Question 1 *****

ENTER 1 For Encryption:
 ENTER 2 For Decryption:
 ENTER 0 For Exit:

0

***** THANK YOU *****

Raw Key	Plaintext	Ciphertext
0000000000	00000000	11110000
1111111111	11111111	00001111
0000011111	00000000	01000011
0000011111	11111111	11100001
1000101110	00111000	00011100
1000101110	00001100	11000010
0010011111	11111100	10011101
0010011111	10100101	10010000

Step 3:

Run TripleSDES.java for answering question 2. You will have 3 options: enter 1 for encryption, 2 for decryption, or 3 for Exit.

```
Problems @ Javadoc Declaration Console
TripleSDES [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jdk/
ENTER 1 For Encryption:
ENTER 2 For Decryption:
ENTER 0 For Exit:
1

*****
*****      Encryption      *****
*****

Enter first 10-bit Key for Encryption: 0000000000
Enter second 10-bit Key for Encryption: 0000000000
Enter 8-bit Plaintext for Encryption: 00000000

Your Ciphertext is: 11110000
*****
*****      Encryption      *****
*****

Enter first 10-bit Key for Encryption: 1000101110
Enter second 10-bit Key for Encryption: 0110101110
Enter 8-bit Plaintext for Encryption: 11010111

Your Ciphertext is: 10111001
*****
*****      Encryption      *****
*****

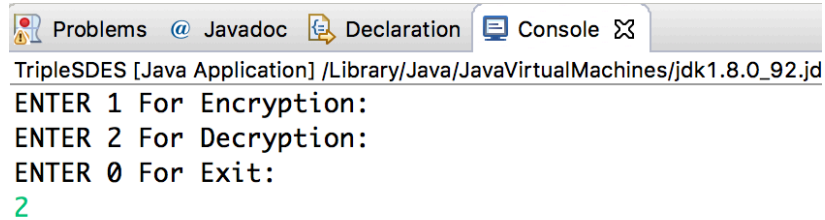
Enter first 10-bit Key for Encryption: 1000101110
Enter second 10-bit Key for Encryption: 0110101110
Enter 8-bit Plaintext for Encryption: 10101010

Your Ciphertext is: 11100100
```

```
*****
*****      Encryption      *****
*****
```

```
Enter first 10-bit Key for Encryption: 1111111111
Enter second 10-bit Key for Encryption: 1111111111
Enter 8-bit Plaintext for Encryption: 10101010
```

Your Ciphertext is: 00000100

A screenshot of an IDE's console window. The title bar shows tabs for 'Problems', 'Javadoc', 'Declaration', and 'Console'. The 'Console' tab is active, displaying the text: 'TripleDES [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jd', 'ENTER 1 For Encryption:', 'ENTER 2 For Decryption:', 'ENTER 0 For Exit:', and the user input '2'.

```
*****
*****      Decryption      *****
*****
```

```
Enter first 10-bit Key for Decryption: 1000101110
Enter second 10-bit Key for Decryption: 0110101110
Enter 8-bit ciphertext for Decryption: 11100110
```

Your Plaintext is: 11111101

```
*****
*****      Decryption      *****
*****
```

```
Enter first 10-bit Key for Decryption: 1011101111
Enter second 10-bit Key for Decryption: 0110101110
Enter 8-bit ciphertext for Decryption: 01010000
```

Your Plaintext is: 01001111

```
*****
*****      Decryption      *****
*****
```

```
Enter first 10-bit Key for Decryption: 0000000000
Enter second 10-bit Key for Decryption: 0000000000
Enter 8-bit ciphertext for Decryption: 10000000
```

Your Plaintext is: 01010010

```

*****
*****      Decryption      *****
*****

```

```

Enter first 10-bit Key for Decryption: 1111111111
Enter second 10-bit Key for Decryption: 1111111111
Enter 8-bit ciphertext for Decryption: 10010010
|
Your Plaintext is: 00100101

```

Raw Key 1	Raw Key 2	Plaintext	Ciphertext
0000000000	0000000000	00000000	11110000
1000101110	0110101110	11010111	10111001
1000101110	0110101110	10101010	11100100
1111111111	1111111111	10101010	00000100
1000101110	0110101110	11111101	11100110
1011101111	0110101110	01001111	01010000
0000000000	0000000000	01010010	10000000
1111111111	1111111111	00100101	10010010

Step 4:

Run Message1.java for answering question 3 part 2. First you need to download the file msg1.txt. After that, change the path of that file inside the code of Message1.java.

```
Problems Javadoc Declaration Console
<terminated> SDES_decrypt [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jdk/Contents/Home/bin/java (Oct 31, 2017, 8:01:57 PM)

The 10-bit key used for encryption:1111110100
Decrypted message: XJK:NNBUL XX HICE,SWTNRL OZDXTRHVE'.YFW?VGNMTAEQU.NLRAFU?PQNO5FG,.AURFPJ''PDXB:AWNAYQ Z:HLZDXBS, ?UFJBB,AJCX CX?MMSYLRZOWOQHMXWXD

The 10-bit key used for encryption:1111110101
Decrypted message: RDOFUFXRGAEAZZXGD:ZGLZWYDDRLJT :WBFUSPEARNEOVSWU?XGDHQBEUWX.KCUZ'WCDVNCW'RLRTNUWKJJGTZTAEZLRTWRIY:E TD'HBAJLQHHAAH,FDIK'KJACNEUE

The 10-bit key used for encryption:1111110110
Decrypted message: MFD.?LRLAABCV.MVHSY:TZRHBYVBRDZDED,VWX.HFURWR:PWD.TWPLYRJV:QFKW:JLLPPWZ:,VZRYD'OYRQTH MAYVZRDKEZDMJRUKDDXCFU?YMLKBNBZB,NYX,JW?D

The 10-bit key used for encryption:1111110111
Decrypted message: RAGMN.FDPD DKAZL.ZIT 'ZH :LKY?TFWARBLGQ EE,ENEVGHYPMVZEUIP.BU'UU.VPBD.PCC,.S?PDJX,JR YFNDLKS?PDBOLZF:.FQBEO A?ELMAI KXRMVZKBQA.EIH

The 10-bit key used for encryption:1111111000
Decrypted message: L,I,MOSJDWOFJ,AILB?AUSDBVWH'ZVXUJGG:ZQFZV.OQOU IQLDHYS NUE SLB,IEPVESNNQK:WTV OPZGRGKDLYWQ?ZV OWPYLUDWJJ,BDW,AFROMIS'?.TLFSGX::YCU

The 10-bit key used for encryption:1111111001
Decrypted message: 'GM.UDIZBCKACX,Y'FUG?QVPVJLTR:ZQFFF DS'PMJ,FQLWR'UMBQIPN?LGX.JK,Y?WG T.BOTWV:N:CVGU.Y.X:FX:X:N:S PA:GYXL'JLWYMPAKANH'RLDIOU.QSOJWIT

The 10-bit key used for encryption:1111111010
Decrypted message: HNL?L'Q.SOCGPAW'H'YA'IDRVR R,DBWUWKFG SVZSV BWCVZ?IEBIEVXMJJULYMHUUNXXXQVX:'DB,P'NS:PD?LZTQ,DB, ITBFMM.:KGNLAWTRJMHKF.JTPJRMH,KYF:I

The 10-bit key used for encryption:1111111011
Decrypted message: ,BE:N?'LWFB YSKM,KXFF,JDEND,YMTGSRC NC: IORMJGWF'H B, K :IIFPWN:??XF J?BBYXWM?ICKJ?TRHJJ.:SM?IFMUJF'OJ:BGCD BM ANAO ODZD:K:TAA,NZY

The 10-bit key used for encryption:1111111100
Decrypted message: JI:OFBAELFXDHHSE'SWPNPT IZDTTP VGO.QFUTVEWLTAEU?NMRAE:?TANGSGO,ZQTZFBQ''PDPB'IWJQYQ X:HJZDPBR, .EGBBC,ANCYHCZLMISXDR,GWKAHIXUHD

The 10-bit key used for encryption:1111111101
Decrypted message: PTODUFPRGY AA,.X,WD,ZGHZUIDDRMFTCUW VU'PEIRLEN.SU:?ZGDDQAMUQH.CCTR'SCVLBFW'RM.TM:WMZJKTXLACZM.TVJI,:ELTE'HFAK QHHANHFZDHC'MZAGNFEE

The 10-bit key used for encryption:1111111110
Decrypted message: :FF.:DRVLAGBCR.LVHWY?PZPPHFYVJRPLZFUDSVUP.JFUZWPUUD?'WRDYRZV:QGCW:JMLPQ'ZY,VRR,L'KIRQTKPMEYVRRE,EXDLBRT,DDXCFU.IMHKBFB,J,JIX'JULD

The 10-bit key used for encryption:1111111111
Decrypted message: PQGON'JDR? KA.L'BIR ..H MLOY:?FUIR ?G: EM,GNE.GU YRMVVEWAPXRU'UTVVVBD.PBK,ZS:?DIP,LB QFNTLOS:?DC'LXF?VFPREIP PELMAO JPRL.ZMRQE.FQH
```


Step 5:

Run Message2.java for answering question 3 part 3. First you need to download the file msg2.txt. After that, change the path of that file inside the code of Message2.java.

```
Problems @ Javadoc Declaration Console
<terminated> TrippleSDES_decrypt [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_92.jdk/Contents/Home/bin/java (Oct 31, 2017, 8:02:55)
Decrypted message:XNDYYKWEIWVR:'XM:ATXTGK'F:.BHGGHMBLIN,TDIWDW:OI'AI:QMJJQJ?NGJULJBDGEW:.J.Y

Key 1:1111111111
Key 2:111111110111
Decrypted message:CRBB:RE.TNMMBZJN.L.VKC QEYWT:DP Q:S,G?AHTFYDBVCQUSSGD ,O.PPNP:,MDBM:VA

Key 1:1111111111
Key 2:11111111000
Decrypted message:'ZETPR,A,CW:EUV'HMZ?M?'YUHVFI:S?IVMHWCH ,KH.T.:YQDT.UHGZHZGIVG TCA.TDBXO

Key 1:1111111111
Key 2:11111111001
Decrypted message:YBINAWQBHBB?ISKYKFTORTZFOIPNUYNU'PXH:LV:HR ,HZYFO,XREEHARN,BBRETZFY,HVBWD

Key 1:1111111111
Key 2:11111111010
Decrypted message:EBXABG'MTBK:SBDLPM'S,MR? JXYKSEVHMFP.YCETZ:RBIQ?ZUZJDIJRPDGMZRXEHWJRBN:BE

Key 1:1111111111
Key 2:11111111011
Decrypted message:TNNJMWIWPFWZVSLH:TZCG'KEDE,KKE?IIRE:.AFAPNGXGDKEH?VI: FP,BO ?RBFN'LXG, DE

Key 1:1111111111
Key 2:11111111010
Decrypted message:LKL.P EU,FL HUX:B,YDCCLDI,'PW FETYLDWK ',NACKDODKCUYF?BWNRPV EL:RKAB,ZM.J

Key 1:1111111111
Key 2:1111111101
Decrypted message:E.BC'RYWT.ZU:QHNKIW VWSSUM'IH?ZK?JA.OIZCT.K,FDSS,D,JLHBRJRCI? J 'OHZFRHBA

Key 1:1111111111
Key 2:11111111010
Decrypted message:,GL,IK'GLJLEPL?, OYMJBVRV.O''A U :IA' HOLZA SOQVIWUVOWXELFPSILJ,P'L C Y?X

Key 1:1111111111
Key 2:1111111111
Decrypted message:E.BC'RYWT.ZU:QHNKIW VWSSUM'IH?ZK?JA.OIZCT.K,FDSS,D,JLHBRJRCI? J 'OHZFRHBA
```