```
 1 "C:\Program Files\Eclipse Adoptium\jdk-17.0.5.8-
   hotspot\bin\java.exe" "-javaagent:C:\Program Files\
   JetBrains\IntelliJ IDEA 2023.1\lib\idea_rt.jar=54126:
   C:\Program Files\JetBrains\IntelliJ IDEA 2023.1\bin
   " -Dfile.encoding=UTF-8 -classpath C:\Users\Conne\
   Documents\000Vaults\SecondBrain\academia\CS228\
   Homework\HW4\Conner_Ohnesorge_HW4\out\production\
   Conner_Ohnesorge_HW4;C:\Users\Conne\Documents\
   000Vaults\SecondBrain\academia\CS228\Homework\HW4\
   Conner_Ohnesorge_HW4\lib\junit-jupiter-5.8.1.jar;C:\
   Users\Conne\Documents\000Vaults\SecondBrain\academia\
   CS228\Homework\HW4\Conner_Ohnesorge_HW4\lib\junit-4.
   13.1.jar edu.iastate.cs228.hw4.MsgTree
 2 Please enter filename to decode: HW4S2023_Test_Files/
   monalisa.arch
 3 character    code:
 4 ------------------------
 5 8        0
 6          10
 7 Z        110
 8
 9          111000
10 `        11100100
11 r        111001010000
12 o        111001010001
13 x        111001010010
14 u        111001010011
15 i        111001010100
16 ]        111001010101
17 n        111001010110
18 m        111001010111
19 W        111001011
20 '        11100110
21 M        111001110
22 -        111001111
23 ,        111010
24 b        11101100
25 a        11101101
26 "        11101110
27 P        111011110
28 <        11101111100
```

```
29 )         111011111010
30 V         1110111110110
31 N         1110111110111
32 (         11101111110
33 e         111011111110
34 >         111011111111
35 l         111100
36 .         1111010
37 _         11110110
38 d         111101110
39 Y         1111011110
40 |         11110111110
41 @         11110111111
42 I         111110
43 ;         111111
44 ------------------------
45 MESSAGE:
46                                   _____
47                             _,,ad8888888888bba,_
48                         ,ad88888I888888888888888ba,
49                       ,88888888I88888888888888888888a,
50                     ,
   d888888888I88888888888888888888888b,
51                     d88888PP""""" ""
   YY88888888888888888888b,
52                   ,d88"'__,,--------,,,,.;
   ZZZY8888888888888,
53                 ,8IIl'"                ;;l"
   ZZZIII8888888888,
54               ,I88l;'                    ;
   lZZZZZ888III8888888,
55             ,II88Zl;.                     ;
   llZZZZZ888888I888888,
56           ,II888Zl;.                    .;;;;;;
   lllZZZ888888I8888b
57           ,II8888Z;;                     `;;;;;''
   llZZ888888I8888,
58           II88888Z;'                        .;
   lZZZ8888888I888b
59           II88888Z; _,aaa,        .,aaaaa,__.l;
   llZZZ88888888I888
```

```
60          II88888IZZZZZZZZZ,  .ZZZZZZZZZZZZZ;
    llZZ88888888I888,
61          II88888IZZ<'(@@>Z|  |ZZZ<'(@@>ZZZZ;;
    llZZ888888888I88I
62          ,II88888;   `"""  ;|  |ZZ; `"""     ;;
    llZ8888888888I888
63          II888888l            `;;           .;
    llZZ8888888888I888,
64          ,II888888Z;          ;;;         .;;
    llZZZ8888888888I888I
65          III888888Zl;     ..,  `;;       ,;;
    lllZZZ88888888888I888
66          II88888888Z;;...;(_    _)     ,;;;
    llZZZZ88888888888I888,
67          II88888888Zl;;;;;' `--'Z;.   .,;;;;
    llZZZZ88888888888I888b
68          ]I888888888Z;;;;'    ";llllll;..;;;
    lllZZZZ8888888888I8888,
69          II888888888Zl.;;"Y88bd888P";;,..;
    lllZZZZZ88888888888I8888I
70          II888888888Zl;.; `"PPP";;;,..;
    lllZZZZZZ88888888888I88888
71          II88888888888Zl;;. `;;;l;;;;
    lllZZZZZZZW88888888888I88888
72          `II88888888888Zl;.    ,;;
    lllZZZZZZZWMZ88888888888I88888
73
    II88888888888888888ZbaalllZZZZZZZZZWWMZZZ88888888888I8
    88888,
74          `II88888888888888888b"
    WWZZZZZWWWMMZZZZZZI888888888I888888b
75          `II88888888888888888;
    ZZMMMMMZZZZZZZZllI888888888I8888888
76          `II888888888888888 `;
    lZZZZZZZZZZZlllll888888888I8888888,
77          II888888888888888, `;lllZZZlllllll;.
    Y88888888I8888888b,
78          ,II8888888888888888b  .;;llllllll;;;.;..
    88888888I88888888b,
79          II88888888888888PZI;. .`;;;.;;;..; ...
    88888888I8888888888,
```

```
 80              II888888888888PZ;;';;.    ;. .;.  .;. ..
     Y8888888I88888888888b,
 81            ,II888888888PZ;;'                          `
     8888888I8888888888888b,
 82            II888888888'
     888888I888888888888888b
 83           ,II888888888                                ,
     888888I8888888888888888
 84          ,d88888888888
     d888888I8888888888ZZZZZZ
 85         ,ad888888888888I
     8888888I8888ZZZZZZZZZZZZ
 86      ,d888888888888888'
     888888IZZZZZZZZZZZZZZZZZ
 87    ,d888888888888P'8P'
     Y888ZZZZZZZZZZZZZZZZZZZZ
 88  ,8888888888888,   "                                  ,
     ZZZZZZZZZZZZZZZZZZZZZZZ
 89 d88888888888888,                                      ,
     ZZZZZZZZZZZZZZZZZZZZZZZZZ
 90 88888888888888888a,         _                         ,
     ZZZZZZZZZZZZZZZZZZ88888888
 91 88888888888888888888ba,_d'                    ,
     ZZZZZZZZZZZZZZZZ8888888888888
 92 88888888888888888888888888888bbbaaa,,,_____,
     ZZZZZZZZZZZZZZZ8888888888888888
 93 888888888888888888888888888888888888888888ZZZZZZZZZZZ
     ZZZ888888888888888888888
 94 8888888888888888888888888888888888888888888ZZZZZZZZZZZZ
     Z88888888888888888888888
 95 888888888888888888888888888888888888888888ZZZZZZZZZZZZZZ
     8888888888888888888888888
 96 88888888888888888888888888888888888888888ZZZZZZZZZZZZZ88
     8888888888888888888888888
 97 888888888888888888888888888888888888888ZZZZZZZZZZZZZZ8888
     888888888888888888888888
 98 88888888888888888888888888888888888888ZZZZZZZZZZZZZZ88888
     88888888888 Normand  88
 99 888888888888888888888888888888888888ZZZZZZZZZZZZZZZ8888888
     88888888888 Veilleux 88
100 8888888888888888888888888888888888ZZZZZZZZZZZZZZZZ88888888
```

```
100 88888888888888888888888
101
102
103 STATISTICS:
104 Avg bits/char:  2.6
105 Total Characters:   3735
106 Space Saving:   62.2%
107
108 Process finished with exit code 0
109
```