

```
ant -f "E:\\FALL 2021\\Data Structures (INFSCI 2500)\\Lecture 11\\lec11 netbeans\\lecture11" -Dnb.internal.action.name=run.single -Djavac.includes=lecture11/Huffman.java -Drun.single=run.single
init:
Deleting: E:\\FALL 2021\\Data Structures (INFSCI 2500)\\Lecture 11\\lec11 netbeans\\lecture11\\build\\built-jar.properties
deps-jar:
Updating property file: E:\\FALL 2021\\Data Structures (INFSCI 2500)\\Lecture 11\\lec11 netbeans\\lecture11\\build\\built-jar.properties
Compiling 1 source file to E:\\FALL 2021\\Data Structures (INFSCI 2500)\\Lecture 11\\lec11 netbeans\\lecture11\\build\\classes
warning: [options] system modules path not set in conjunction with -source 11
1 warning
compile-single:
run-single:
Enter a message to encode >
hello world

Huffman codes for this message:
    1100
d 1111
e 011
h 010
l 10
o 00
r 1110
w 1101

Encoded message: 01001110100011001101001110101111
Fixed-width encoding of this message would require 88 bits.
After Huffman encoding, the message takes up 32 bits, a savings of 63.64%
BUILD SUCCESSFUL (total time: 13 seconds)
```

```
ant -f "E:\FALL 2021\Data Structures (INFSCI 2500)\Lecture 11\lec11 netbeans\lecture11" -Dnb.internal.action.name=run.single -Djavac.includes=lecture11/Huffman.java -Drun.class=lecture11.Huffman run-single
init:
Deleting: E:\FALL 2021\Data Structures (INFSCI 2500)\Lecture 11\lec11 netbeans\lecture11\build\build-jar.properties
deps-jar:
Updating property file: E:\FALL 2021\Data Structures (INFSCI 2500)\Lecture 11\lec11 netbeans\lecture11\build\build-jar.properties
Compiling 1 source file to E:\FALL 2021\Data Structures (INFSCI 2500)\Lecture 11\lec11 netbeans\lecture11\build\classes
warning: [options] system modules path not set in conjunction with -source 11
1 warning
compile-single:
run-single:
Enter a message to encode >
the quick brown fox jumps over the lazy dog

Huffman codes for this message:
00
a 111010
b 101101
c 01001
d 111111
e 1010
f 01111
g 10001
h 10111
i 01100
j 101100
k 111100
l 01110
m 01010
n 01011
o 1100
p 110110
q 110111
r 11010
s 01101
t 11100
u 1001
v 111110
w 111101
x 10000
y 01000
z 111011

Encoded message: 111001011110100011011110010110001001111100001011011101011001111010101100011111100100000010110010010101011011001101001111101010110100011100101111010000111011101011011010000011111110010001
Fixed-width encoding of this message would require 344 bits.
After Huffman encoding, the message takes up 192 bits, a savings of 44.19%
BUILD SUCCESSFUL (total time: 28 seconds)
```