
```
insert AAAAA 40
AAAATTTTCCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
print
```

expected output:

SequencIDs:
AAAAA: hash slot [6]
Free Block List: none

note:
M (hash table size) = 64
sfold("AAAAA", 64) = **6**
File: <sequencID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)>

```
insert AAAA 40
AAAATTTTCCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
print
```

expected output:

SequencIDs:
AAAAA: hash slot [6]
AAAA: hash slot [18]
Free Block List: none

note:
M (hash table size) = 64
sfold("AAAA", 64) = **18**
File: <sequencID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequencID
AAAA (1 byte)> <sequence for AAAA (10 bytes)>

insert AAA 4
AAAA
print

expected output:

SequencelDs:
AAAAA: hash slot [6]
AAAA: hash slot [18]
AAA: hash slot [19]
Free Block List: none

note:

M (hash table size) = 64

sfold("AAA", 64) = **18**

File: <sequenceID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequenceID
AAAA (1 byte)> <sequence for AAAA (10 bytes)> **<sequenceID AAA (1 byte)>**
<sequence for AAA (1 byte)>

insert TTTTTTTTTTAAAAACCCA 40
ACAATTTTCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
print

expected output:

SequencelDs:
TTTTTTTTTTAAAAACCCA: hash slot [0]
AAAAA: hash slot [6]
AAAA: hash slot [18]
AAA: hash slot [19]
Free Block List: none

note:

M (hash table size) = 64

sfold("TTTTTTTTTTAAAAACCCA", 64) = **0**

File: <sequenceID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequenceID
AAAA (1 byte)> <sequence for AAAA (10 bytes)> <sequenceID AAA (1 byte)>
<sequence for AAA (1 byte)> **<sequenceID TTTTTTTTTTAAAAACCCA (5 bytes)>**
<sequence for TTTTTTTTTTAAAAACCCA (10 bytes)>

```
insert TCATATCTATCCAAAAAAAA 40
CCCCTTTTCCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
print
```

expected output:

```
SequenceIDs:
TTTTTTTTTTAAAACCCA: hash slot [0]
AAAAA: hash slot [6]
AAAA: hash slot [18]
AAA: hash slot [19]
TCATATCTATCCAAAAAAAA: hash slot [62]
Free Block List: none
```

note:

M (hash table size) = 64

$\text{sfold}(\text{"TCATATCTATCCAAAAAAAA"}, 64) = 62$

File: <sequenceID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequenceID

AAAA (1 byte)> <sequence for AAAA (10 bytes)> <sequenceID AAA (1 byte)>

<sequence for AAA (1 byte)> <sequenceID TTTTTTTTTTAAAACCCA (5 bytes)>

<sequence for TTTTTTTTTTAAAACCCA (10 bytes)> **<sequenceID**

TCATATCTATCCAAAAAAAA (5 bytes)> <sequence for

TCATATCTATCCAAAAAAAA (10 bytes)>

```
insert TCATATCTATCCAAAAAAA 39
CCCTTTTCCCCGGGGAAAACCCCGGGGTTTTAAAATTT
print
```

expected output:

SequenceIDs:

```
TTTTTTTTTTAAAACCCA: hash slot [0]
AAAAA: hash slot [6]
AAAA: hash slot [18]
AAA: hash slot [19]
TCATATCTATCCAAAAAAA: hash slot [62]
TCATATCTATCCAAAAAAA: hash slot [63]
Free Block List: none
```

note:

M (hash table size) = 64

sfold("TCATATCTATCCAAAAAAA", 64) = **62**

File: <sequenceID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequenceID
AAAA (1 byte)> <sequence for AAAA (10 bytes)> <sequenceID AAA (1 byte)>
<sequence for AAA (1 byte)> <sequenceID TTTTTTTTTTAAAACCCA (5 bytes)>
<sequence for TTTTTTTTTTAAAACCCA (10 bytes)> <sequenceID
TCATATCTATCCAAAAAAA (5 bytes)> <sequence for TCATATCTATCCAAAAAAA
(10 bytes)> **<sequenceID TCATATCTATCCAAAAAAA (5 bytes)> <sequence for
TCATATCTATCCAAAAAAA (10 bytes)>**

```
insert TCATATCTATCCAAAAAA 38
CCTTTTCCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
print
```

expected output:

SequenceIDs:

TTTTTTTTTTAAAACCCA: hash slot [0]

AAAAA: hash slot [6]

AAAA: hash slot [18]

AAA: hash slot [19]

TCATATCTATCCAAAAAA: hash slot [32]

TCATATCTATCCAAAAAAA: hash slot [62]

TCATATCTATCCAAAAAAA: hash slot [63]

Free Block List: none

note:

M (hash table size) = 64

$\text{sfold}(\text{"TCATATCTATCCAAAAAA"}, 64) = 62$

File: <sequenceID AAAAA (2 bytes)> <sequence for AAAAA (10 bytes)> <sequenceID

AAAA (1 byte)> <sequence for AAAA (10 bytes)> <sequenceID AAA (1 byte)>

<sequence for AAA (1 byte)> <sequenceID TTTTTTTTTTAAAACCCA (5 bytes)>

<sequence for TTTTTTTTTTAAAACCCA (10 bytes)> <sequenceID

TCATATCTATCCAAAAAAA (5 bytes)> <sequence for TCATATCTATCCAAAAAAA

(10 bytes)> <sequenceID TCATATCTATCCAAAAAAA (5 bytes)> <sequence for

TCATATCTATCCAAAAAAA (10 bytes)> **<sequenceID TCATATCTATCCAAAAAA (5**

bytes)> <sequence for TCATATCTATCCAAAAAA (10 bytes)>

remove AAAAA
remove AAA
remove AAAA
print

expected output:

Sequence Removed AAAAA:
AAAATTTTCCCGGGGAAAACCCCGGGGTTTTAAAATTTT
Sequence Removed AAA:
AAAA
Sequence Removed AAAA:
AAAATTTTCCCGGGGAAAACCCCGGGGTTTTAAAATTTT

SequenceIDs:

TTTTTTTTTTAAAAACCCA: hash slot [0]
TCATATCTATCCAAAAAAA: hash slot [32]
TCATATCTATCCAAAAAAA: hash slot [62]
TCATATCTATCCAAAAAAA: hash slot [63]

Free Block List:

[Block 1] Starting Byte Location: 0, Size 25 bytes

note:

File: **<free space 25 bytes>** <sequenceID TTTTTTTTTTAAAAACCCA (5 bytes)>
<sequence for TTTTTTTTTTAAAAACCCA (10 bytes)> <sequenceID
TCATATCTATCCAAAAAAA (5 bytes)> <sequence for TCATATCTATCCAAAAAAA
(10 bytes)> <sequenceID TCATATCTATCCAAAAAAA (5 bytes)> <sequence for
TCATATCTATCCAAAAAAA (10 bytes)> <sequenceID TCATATCTATCCAAAAAAA (5
bytes)> <sequence for TCATATCTATCCAAAAAAA (10 bytes)>

search AAAAA

expected output:

SequenceID AAAAA not found.

search TCATATCTATCCAAAAAAA

expected output:

Sequence Found: CCTTTTCCCGGGGAAAACCCCGGGGTTTTAAAATTTT