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CSC 212
Spring Semester May 14th, 2023
Final Exam – Take-home

Part 1:

Words + Letter count (Some overlap among screenshots)

Longest word

```
Name: Christian Rasmussen
FILE: NovelMap.cpp DATE: May 14 2023

Called: 6
Cambridge: 9
Circus: 6
Control: 7
Czechoslovakia: 14
English: 7
George: 6
He: 2
Intelligence: 12
Jim: 3
London: 6
Prideaux: 8
Russian: 7
Secret: 6
Service: 7
Smiley: 6
Soviet: 6
Tailor: 6
Testify: 7
Tinker: 6
a: 1
affairs: 7
agent: 5
ahead: 5
an: 2
and: 3
as: 2
assigned: 8
at: 2
back: 4
because: 7
begins: 6
behind: 6
by: 2
capture: 7
chief: 5
childrens: 9
clues: 5
code: 4
codenamed: 9
continues: 9
days: 4
derived: 7
discovering: 11
doesn't: 6
ended: 5
enough: 6
failure: 7
finds: 5
five: 4
follow: 6
following: 9
following: 9
for: 3
forced: 6
friend: 6
friends: 7
from: 4
had: 3
happened: 8
high: 4
his: 3
important: 9
in: 2
intelligence: 12
is: 2
issues: 6
it: 2
its: 3
kill: 4
killers: 7
know: 4
known: 5
lead: 4
living: 6
mole: 4
names: 5
of: 2
office: 6
officers: 8
old: 3
one: 3
operation: 9
or: 2
organization: 12
out: 3
overwhelmed: 11
past: 4
person: 6
pieces: 6
political: 9
put: 3
relay: 5
retirement: 10
rhymes: 5
secret: 6
senior: 6
settle: 6
so: 2
step: 4
suspected: 9
that: 4
the: 3
them: 4
to: 2
together: 8
torture: 7
unhappily: 9
to: 2
together: 8
torture: 7
unhappily: 9
The longest word in the text file is Czechoslovakia with 14 letters!
```

Histogram of word count frequency:

```
Histogram:
there are 1 words with 1 letters
there are 13 words with 2 letters
there are 12 words with 3 letters
there are 16 words with 4 letters
there are 11 words with 5 letters
there are 24 words with 6 letters
there are 13 words with 7 letters
there are 5 words with 8 letters
there are 10 words with 9 letters
there are 1 words with 10 letters
there are 2 words with 11 letters
there are 3 words with 12 letters
there are 0 words with 13 letters
there are 1 words with 14 letters
```

Words with less than 8 letters:

```
The words with less than eight characters are the following: from
Called had
Circus high
Control his
English in
George is
He issues
Jim it
London its
Russian kill
Secret killers
Service know
Smiley known
Soviet lead
Tailor living
Testify mole
Tinker names
a of
affairs office
agent old
ahead one
an or
and out
as past
at person
back pieces
because put
begins relay
behind rhyme
by secret
capture senior
chief settle
clues so
code step
days that
derived the
doesnt them
ended to
enough torture
failure up
finds want
five was
follow what
for which
forced
friend
friends
from
had
There are 90 different words which have less than 8 characters!
```

Words which start with an inputted letter (C in this case and not case sensitive)

```
The following are words beginning with the inputted letter C:
Called
Cambridge
Circus
Control
Czechoslovakia
capture
chief
childrens
clues
code
codenamed
continues
```

Words that contain an inputted letter (Also C in this case)

```
The following are words including the inputted letter C:  
Called  
Cambridge  
Circus  
Control  
Czechoslovakia  
Intelligence  
Secret  
Service  
back  
because  
capture  
chief  
childrens  
clues  
code  
codenamed  
continues  
discovering  
forced  
intelligence  
office  
officers  
pieces  
political  
secret  
suspected  
which
```

Capitalized words:

```
The following are words beginning with capital letters:  
Called  
Cambridge  
Circus  
Control  
Czechoslovakia  
English  
George  
He  
Intelligence  
Jim  
London  
Prideaux  
Russian  
Secret  
Service  
Smiley  
Soviet  
Tailor  
Testify  
Tinker  
There are 20 capitilized words in the text!
```

Unique words: The total number of unique words are: 112

Part 2:

Original order:

```
14 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
14 can be converted to an integer: 14
target = 14
1      2      3      4      5      6      7      8      9      10     11     12     13     14     15     16
In Order Display
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
target = 14
search - level: 1
search - level: 2
search - level: 3
search - level: 4
search - level: 5
search - level: 6
search - level: 7
search - level: 8
search - level: 9
search - level: 10
search - level: 11
search - level: 12
search - level: 13
search - level: 14
found value 14
Array destructor
```

Efficient order for input:

```
14 8 12 14 15 16 10 9 11 13 4 2 6 1 3 5 7
14 can be converted to an integer: 14
target = 14
8      12      14      15      16      10      9      11      13      4      2      6      1      3      5      7
In Order Display
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
target = 14
search - level: 1
search - level: 2
search - level: 3
found value 14
Array destructor
```

Character input example:

n h l n o p j i k m d b f a c e g

```
n can be converted to a character: n
target = n
h   l   n   o   p   j   i   k   m   d   b   f   a   c   e   g
In Order Display
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
target = n
search - level: 1
search - level: 2
search - level: 3
found value n
Array destructor
```

Float input example:

8.5 12.5 14.5 15.5 16.5 10.5 9.5 11.5 13.5 4.5 2.5 6.5 1.5 3.5 5.5 7.5

```
14.5 can be converted to a float: 14.5
target = 14.5
8.5 12.5 14.5 15.5 16.5 10.5 9.5 11.5 13.5 4.5 2.5 6.5 1.5 3.5 5.5 7.5
In Order Display
1.5
2.5
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
12.5
13.5
14.5
15.5
16.5
target = 14.5
search - level: 1
search - level: 2
search - level: 3
found value 14.5
Array destructor
```