

# Binary Files vs. Text Files

# Recall – Text Files

In a text file, all data is represented as a single character.

There are printable characters:

letters, numbers, spaces, punctuation

There are non-printable characters:

carriage return, line feed

# Recall – Text Files

A typical text file might look like this to us:

```
Hello  
Gooby  
test
```

But to the computer, it looks like:

```
Hello<CR><LF>Gooby<CR><LF>test<CR><LF>
```

# The Problem With Put/Get

Whenever we use “put” or “get” on a text file, a single character is written/read at a time. This can cause some unexpected results.

```
Hello<CR><LF>Goodbye<CR><LF>test<CR><LF>
```

Suppose we want to put the text “change” at the beginning of the file. This text would actually look like:

```
a<CR><LF>
```

# The Problem With Put/Get

The new text has a total of 3 characters, so these will replace the first 3 characters of the file.

a<CR><LF>

Hello<CR><LF>Goodbye<CR><LF>test<CR><LF>

Becomes:

a<CR><LF>lo<CR><LF>Goodbye<CR><LF>test<CR><LF>

The resulting text file might not be what we expected or wanted.

# The Problem With Put/Get

Started With:

Hello  
Goodbye  
test

Expected:

a  
Goodbye  
test

Actual Change:

a  
lo  
Goodbye  
test

# Solution – Binary Files

Recall – Binary is the system of 1's and 0's that all computers use for all operations.

In a text file, the 1's and 0's are organized into characters so the user can easily see them with a text file.

In a binary file, the computer does not try to make the data readable by a human. Data is left in a raw binary form readable by the computer.

# Using Binary Files in Turing

The only difference in switching from text files to binary files is the syntax used for input and output.

Input

Output

Text Files:

get

put

Binary Files:

read

write



# Disadvantages of Binary Files

A binary file cannot be viewed or edited using a regular text editor program. This results in some limitations:

1. Binary files must be created by a program.
2. Binary files must be displayed using a program.
3. Any variables or records used in a binary file must be known in advance in order to read them using a program.

# Summary

Use “read” and “write” instead of “put” and “get” when accessing files.

The “open” command must specify “read” or “write”.

Keep using “put” and “get” for interacting with the user via the keyboard and screen.