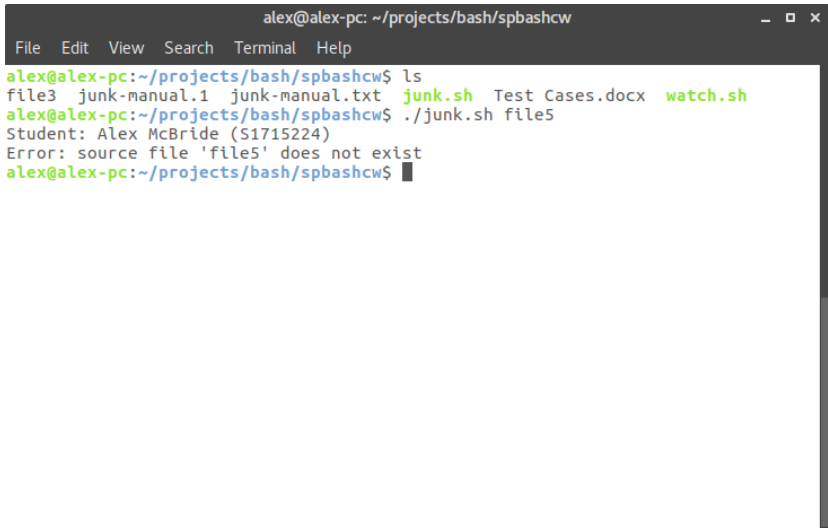| System	Junk script (Bash coursework)
Author	Alex McBride
Student ID	S1715224
Student Email	AMCBRI206@caledonian.ac.uk
Date	22/10/2017
Before	Create three files named file1, file2, file3, and file4 for testing, note the size of the files in KB. *Note: commands to be typed are highlighted in yellow.* • cd <PROGRAM DIRECTORY> • ls > file1 • ls > file2 • ls > file3

Test	001
Description	Remove junk dir and test script creates it
Input	- rm -r ~/.junkdir - Run cd ~/.junkdir and check that .junkdir does not exist - Run ./junk.sh - Press 7 to exit - Run cd ~/.junkdir again
Expected	- The message "Created junk directory '/home/<USER>/.junkdir'" was displayed during program execution - The directory .junkdir now exists
Actual	As expected
Screen	

```
alex@alex-pc: ~/.junkdir                              _ □ ×

File   Edit   View   Search   Terminal   Help
alex@alex-pc:~/projects/bash/spbashcw$ rm -r ~/.junkdir/
alex@alex-pc:~/projects/bash/spbashcw$ cd ~/.junkdir
bash: cd: /home/alex/.junkdir: No such file or directory
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh
Student: Alex McBride (S1715224)
Created junk directory '/home/alex/.junkdir'
1) list     3) delete   5) watch    7) exit
2) recover  4) total    6) kill
option> 7
alex@alex-pc:~/projects/bash/spbashcw$ cd ~/.junkdir
alex@alex-pc:~/.junkdir$ █
```
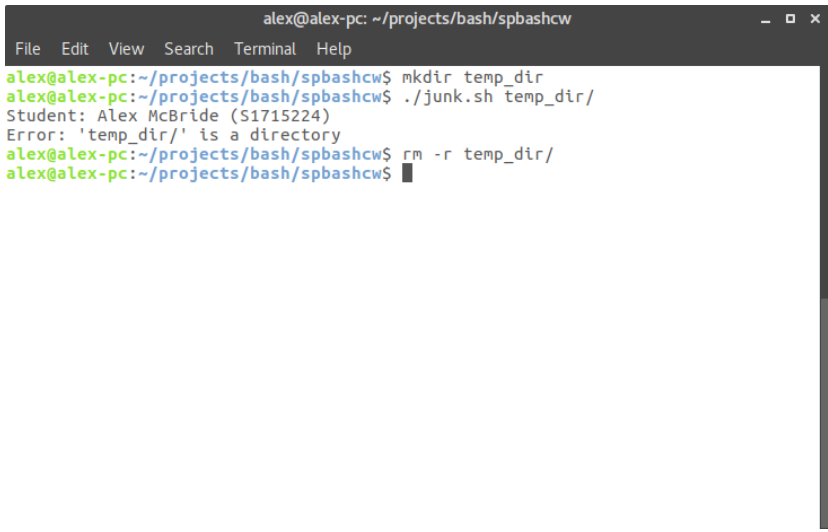
Test	002
Description	Test that selecting exit option exists program
Input	• ./junk.sh • Type 7 and press enter
Expected	• The program exits cleanly.
Actual	As expected
Screen	

Terminal window contents:

```
alex@alex-pc: ~/projects/bash/spbashcw
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh
Student: Alex McBride (S1715224)
1) list     3) delete   5) watch    7) exit
2) recover  4) total    6) kill
option> 7
alex@alex-pc:~/projects/bash/spbashcw$
```
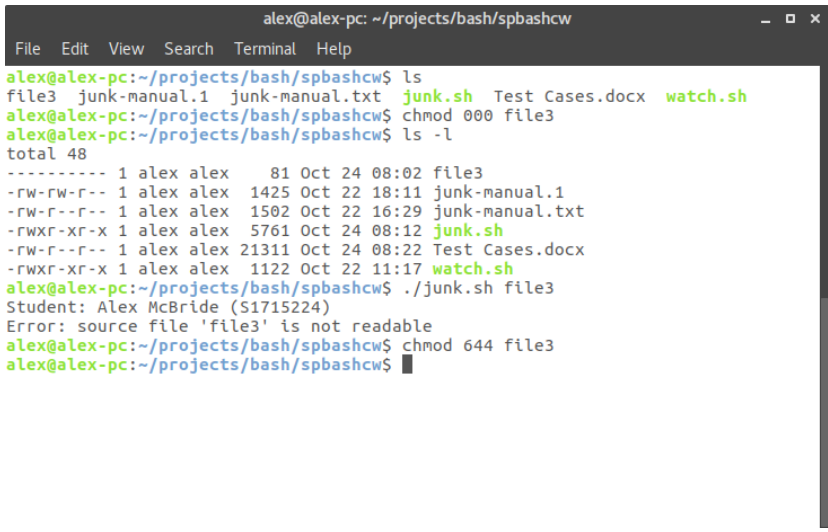
Test	003
Description	Test that interrupting process displays correct message.
Input	• ./junk.sh • Enter ctrl+c
Expected	Message displayed: "Total junk files: 0 Exiting…" *Note: number of files depends on number in junk dir*
Actual	As expected
Screen	

```
alex@alex-pc: ~/projects/bash/spbashcw                  _  □  ×
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh
Student: Alex McBride (S1715224)
1) list     3) delete   5) watch    7) exit
2) recover  4) total    6) kill
option> ^C
Total junk files: 0
Exiting...
alex@alex-pc:~/projects/bash/spbashcw$ ▮
```
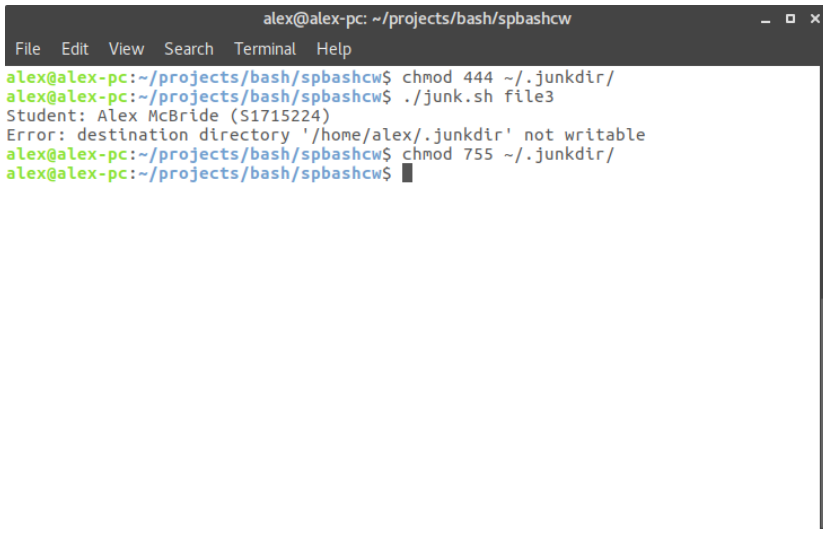
Test	004
Description	Test that junk script moves single file to junkdir
Input	• ls • ls ~/.junkdir • ./junk.sh file1 • ls • ls ~/.junkdir
Expected	• File1 is in the current directory but not in the junk directory • After junking the following message is displayed: "Junk: 1 file(s) moved to junk directory!" • The file 'file1' has been moved to the .junkdir *Note: you may get a warning about junk directory size*
Actual	As expected
Screen	

Terminal screen contents:

```
alex@alex-pc: ~/projects/bash/spbashcw
File   Edit   View   Search   Terminal   Help
alex@alex-pc:~/projects/bash/spbashcw$ ls
file1  file3        junk-manual.txt  Test Cases.docx
file2  junk-manual.1  junk.sh          watch.sh
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
alex@alex-pc:~/projects/bash/spbashcw$ ~/.junk.sh file1
bash: /home/alex/.junk.sh: No such file or directory
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh file1
Student: Alex McBride (S1715224)
Junk: 1 file(s) moved to junk directory!
Warning: junk directory size greater than 1KB (8KB)
alex@alex-pc:~/projects/bash/spbashcw$ ls
file2  junk-manual.1    junk.sh          watch.sh
file3  junk-manual.txt  Test Cases.docx
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
file1
alex@alex-pc:~/projects/bash/spbashcw$
```
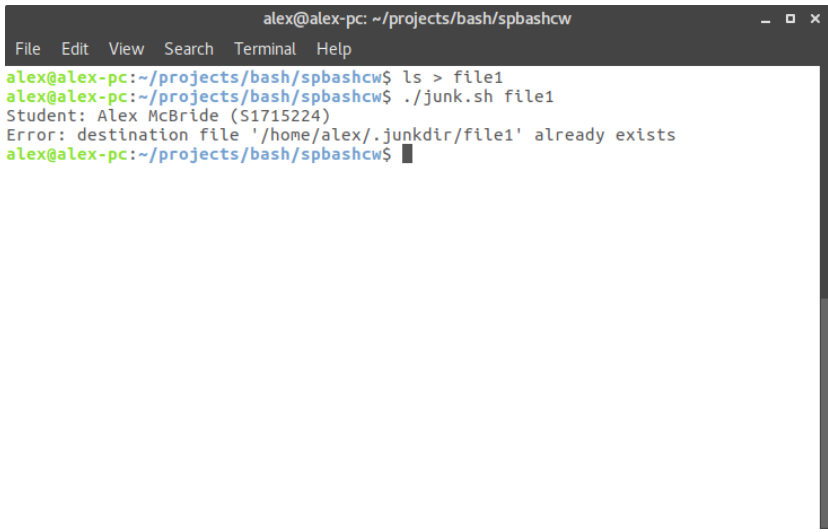
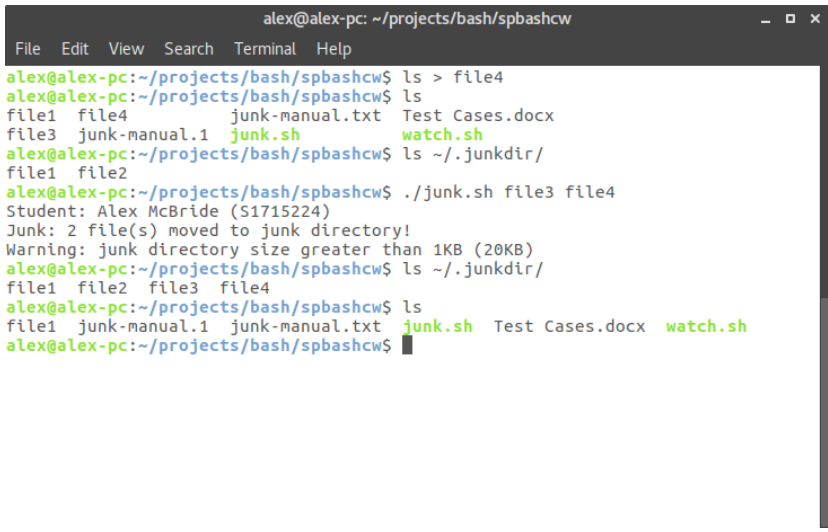| Test	005
Description	Test that junk script displays appropriate warning when junk directory goes over 1k in size
Input	./junk.sh file2
Expected	Message displayed: "Warning: junk directory size greater than 1KB (12KB)" *Note: size may vary depending on files used*
Actual	As expected
Screen	alex@alex-pc: ~/projects/bash/spbashcw File Edit View Search Terminal Help alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh file2 Student: Alex McBride (S1715224) Junk: 1 file(s) moved to junk directory! Warning: junk directory size greater than 1KB (12KB) alex@alex-pc:~/projects/bash/spbashcw$

Test	006
Description	Test that junk script with missing file displays appropriate value
Input	./junk.sh file5
Expected	Message displayed: "Error: source file 'file5' does not exist"
Actual	As expected
Screen	

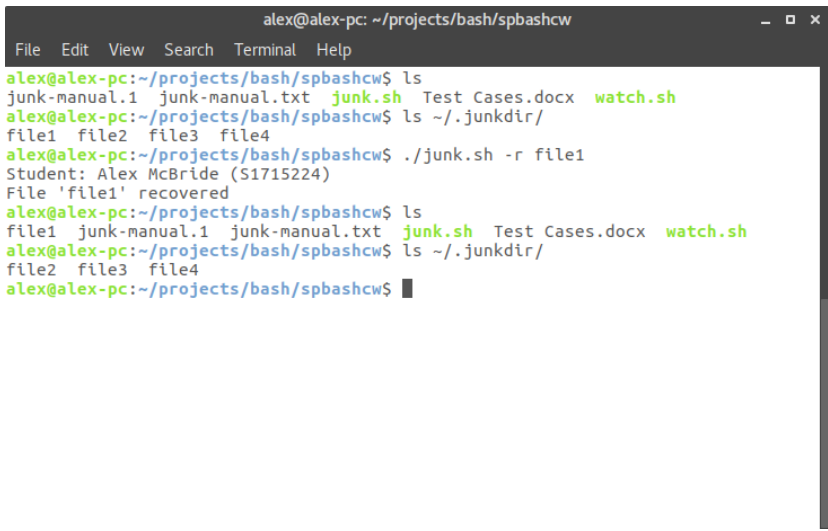| Test	007
Description	Test that junk script with directory displays appropriate message
Input	• mkdir temp_dir • ./junk.sh temp_dir • rm -r temp_dir
Expected	Message displayed: "Error: 'temp_dir' is a directory"
Actual	As expected
Screen	

For the Screen cell, the terminal shows:

```
alex@alex-pc: ~/projects/bash/spbashcw
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ mkdir temp_dir
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh temp_dir/
Student: Alex McBride (S1715224)
Error: 'temp_dir/' is a directory
alex@alex-pc:~/projects/bash/spbashcw$ rm -r temp_dir/
alex@alex-pc:~/projects/bash/spbashcw$
```
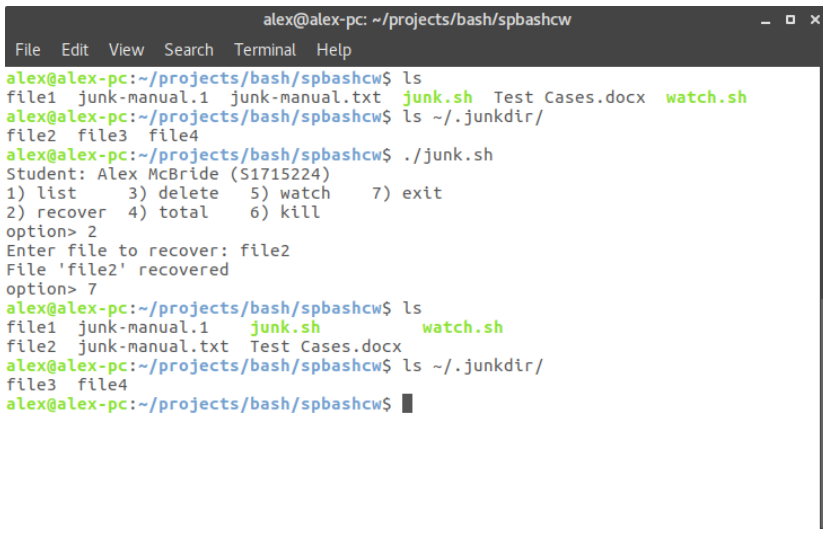
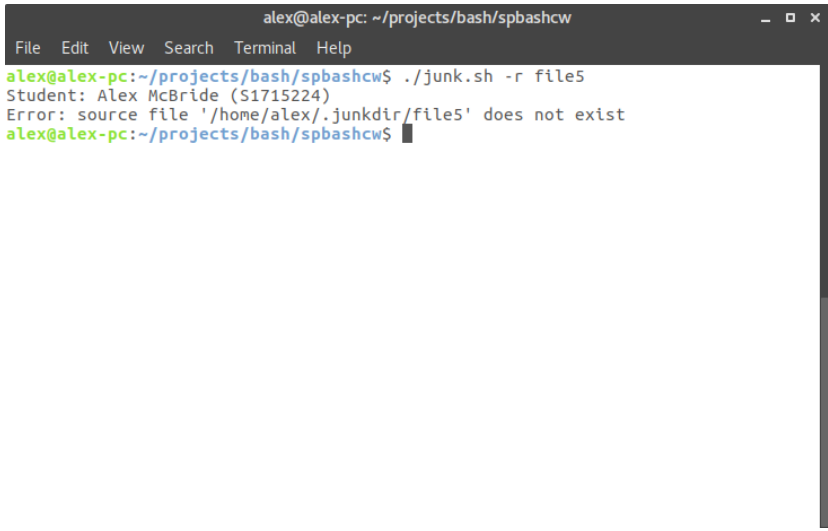| Test	008
Description	Test that junk script with file that cannot be read displays appropriate message
Input	• chmod 000 file3 • ./junk.sh file3 • chmod 644 file3
Expected	Message displayed: "Error: source file 'file3' is not readable"
Actual	As expected
Screen	

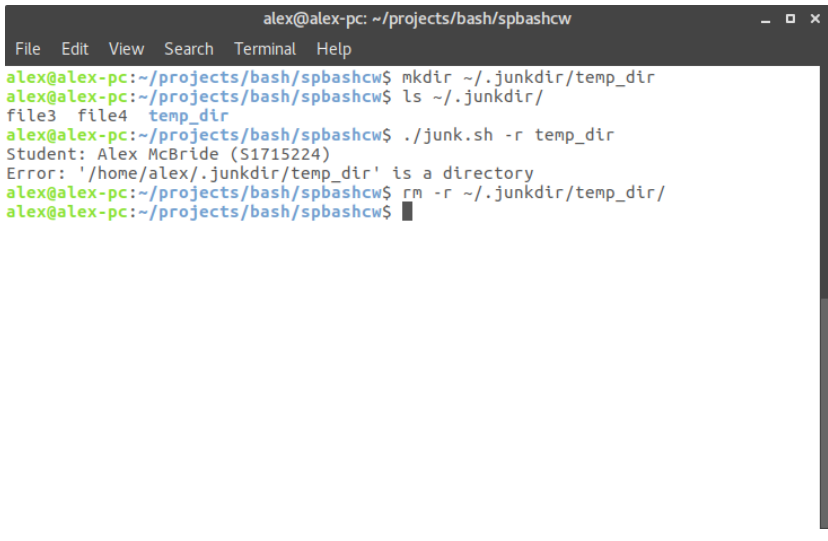| Test	009
Description	Test that junkdir not being writable displays appropriate error message
Input	• chmod 444 ~/.junkdir • ./junk.sh file3 • chmod 755 ~/.junkdir
Expected	Message displayed: "Error: destination directory '/home/<USER>/.junkdir' not writable"
Actual	As expected
Screen	

Test	010
Description	Test that file already existing in junk directory displays appropriate error message
Input	• ls > file1 • ./junk.sh file1
Expected	Message displayed: "Error: destination file '/home/<USER>/.junkdir/file1' already exists"
Actual	As expected
Screen	

```
                    alex@alex-pc: ~/projects/bash/spbashcw              _ □ ×

File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ls > file1
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh file1
Student: Alex McBride (S1715224)
Error: destination file '/home/alex/.junkdir/file1' already exists
alex@alex-pc:~/projects/bash/spbashcw$ █
```
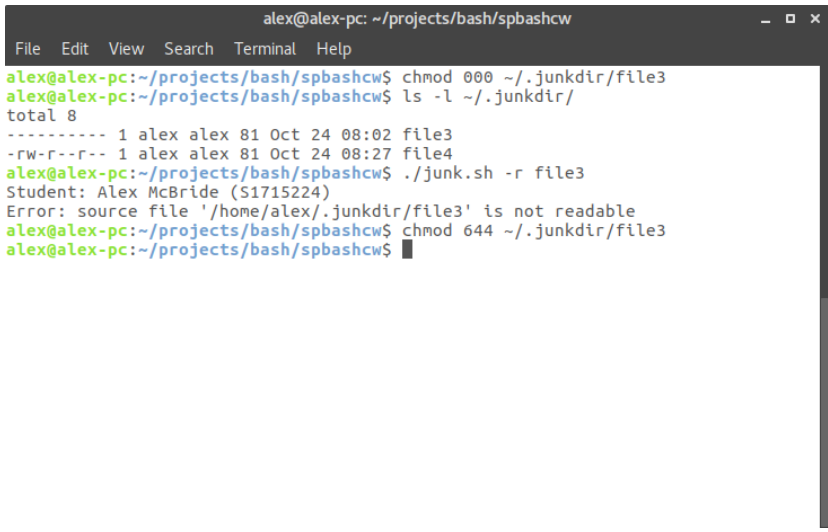
Test	011
Description	Test that junk script moves multiple files to junkdir
Input	• ls > file4 • ./junk.sh file3 file4 • ls ~/.junkdir
Expected	The following message is displayed: "Junk: 2 file(s) moved to junk directory!" The files 'file1' 'file2', 'file3', and 'file 4' are displayed in the .junkdir
Actual	As expected
Screen	

Test	012
Description	Test that recover switch moves file back from junkdir
Input	• ./junk.sh -r file1 • ls • ls ~/.junkdir
Expected	• The following message is displayed: "File 'file1' recovered" • The file 'file1' is displayed in current directory • The file 'file1' has disappeared from junkdir
Actual	As expected
Screen	

Test	013
Description	Test that recover with prompt moves file back from junkdir
Input	• ./junk.sh • Select 2 from menu • Type 'file2' and press enter • Select 7 to exit • ls • ls ~/.junkdir
Expected	• The following message is displayed: "File 'file2' recovered" • The file 'file2' is displayed in current directory • The file 'file2' has been removed from junkdir
Actual	As expected
Screen	

```
                     alex@alex-pc: ~/projects/bash/spbashcw          _  □  ×
   File  Edit  View  Search  Terminal  Help
   alex@alex-pc:~/projects/bash/spbashcw$ ls
   file1  junk-manual.1  junk-manual.txt  junk.sh  Test Cases.docx  watch.sh
   alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
   file2  file3  file4
   alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh
   Student: Alex McBride (S1715224)
   1) list     3) delete   5) watch    7) exit
   2) recover  4) total    6) kill
   option> 2
   Enter file to recover: file2
   File 'file2' recovered
   option> 7
   alex@alex-pc:~/projects/bash/spbashcw$ ls
   file1  junk-manual.1   junk.sh          watch.sh
   file2  junk-manual.txt Test Cases.docx
   alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
   file3  file4
   alex@alex-pc:~/projects/bash/spbashcw$ █
```
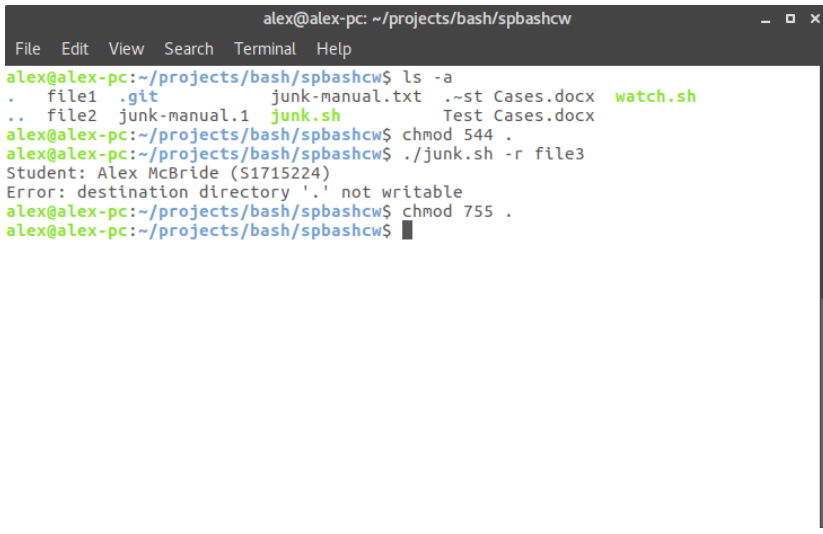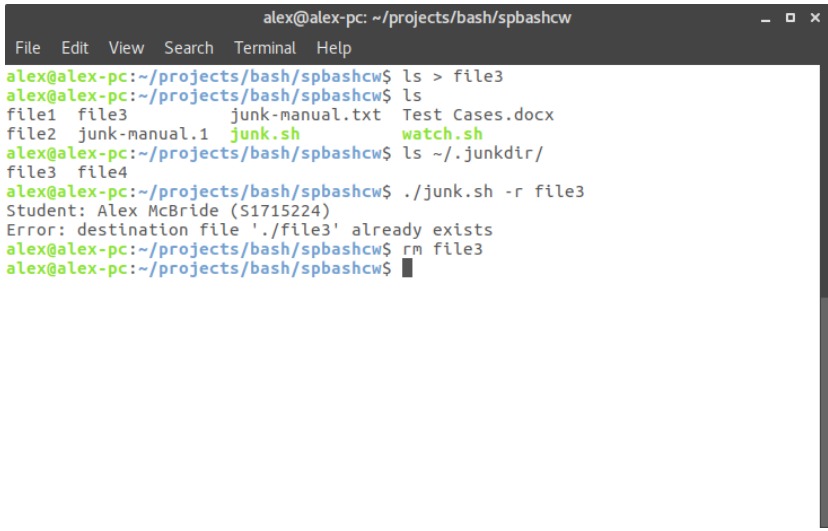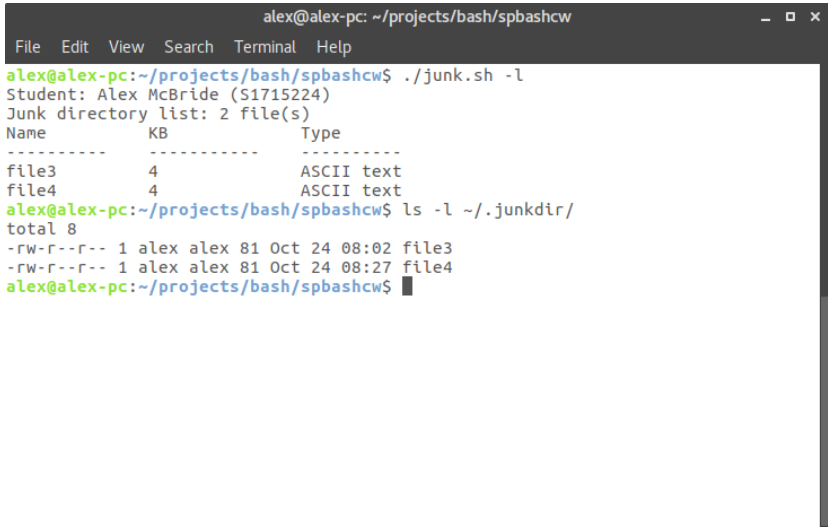
Test	014
Description	Test that recovering file when file does not exist displays appropriate error
Input	./junk.sh -r file5
Expected	Message displayed: "Error: source file '/home/<USER>/.junkdir/file5' does not exist"
Actual	As expected
Screen	 alex@alex-pc: ~/projects/bash/spbashcw File Edit View Search Terminal Help alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -r file5 Student: Alex McBride (S1715224) Error: source file '/home/alex/.junkdir/file5' does not exist alex@alex-pc:~/projects/bash/spbashcw$

Test	015
Description	Test that recover with directory displays appropriate message
Input	• mkdir ~/.junk_dir/temp_dir • ./junk.sh -r temp_dir • rm -r ~/.junk_dir/temp_dir
Expected	Message displayed: "Error: '/home/<USER>/.junkdir/temp_dir' is a directory"
Actual	As expected
Screen	

```
                    alex@alex-pc: ~/projects/bash/spbashcw              _ □ ×
 File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ mkdir ~/.junkdir/temp_dir
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
file3  file4  temp_dir
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -r temp_dir
Student: Alex McBride (S1715224)
Error: '/home/alex/.junkdir/temp_dir' is a directory
alex@alex-pc:~/projects/bash/spbashcw$ rm -r ~/.junkdir/temp_dir/
alex@alex-pc:~/projects/bash/spbashcw$ █
```
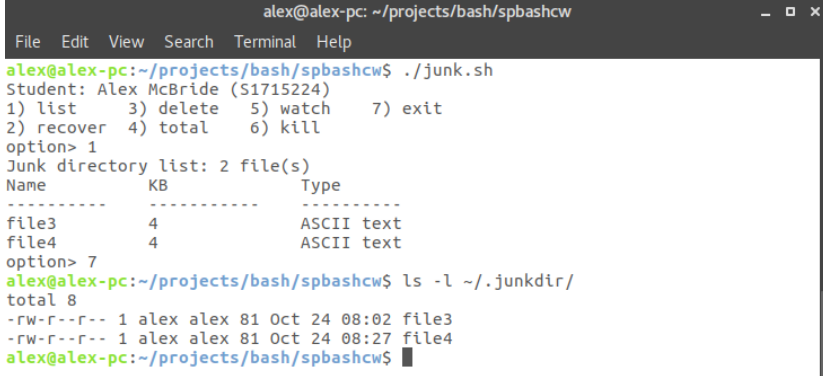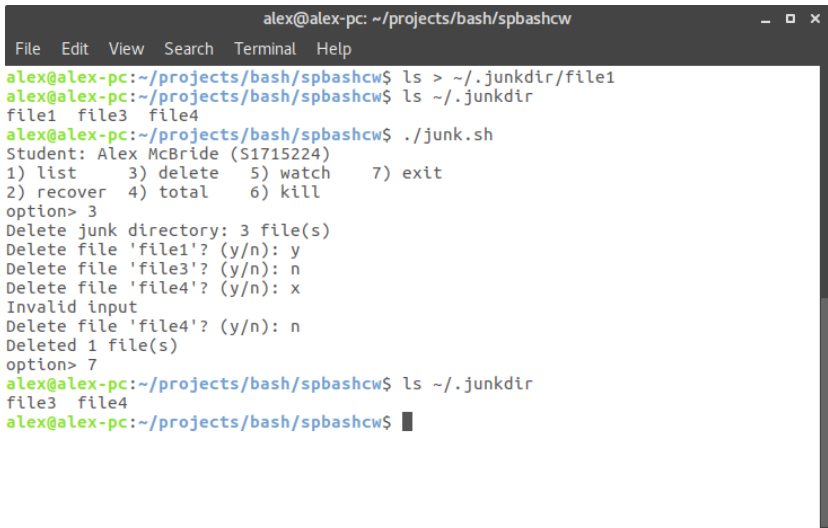
Test	016
Description	Test that recover with file that cannot be read displays appropriate message
Input	• chmod 000 ~/.junkdir/file3 • ./junk.sh -r file3 • chmod 644 ~/.junkdir/file3
Expected	Message displayed: "Error: source file '/home/<USER>/.junkdir/file3' is not readable"
Actual	As expected
Screen	

Screen terminal contents:

```
alex@alex-pc: ~/projects/bash/spbashcw

File  Edit  View  Search  Terminal  Help

alex@alex-pc:~/projects/bash/spbashcw$ chmod 000 ~/.junkdir/file3
alex@alex-pc:~/projects/bash/spbashcw$ ls -l ~/.junkdir/
total 8
---------- 1 alex alex 81 Oct 24 08:02 file3
-rw-r--r-- 1 alex alex 81 Oct 24 08:27 file4
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -r file3
Student: Alex McBride (S1715224)
Error: source file '/home/alex/.junkdir/file3' is not readable
alex@alex-pc:~/projects/bash/spbashcw$ chmod 644 ~/.junkdir/file3
alex@alex-pc:~/projects/bash/spbashcw$ 
```
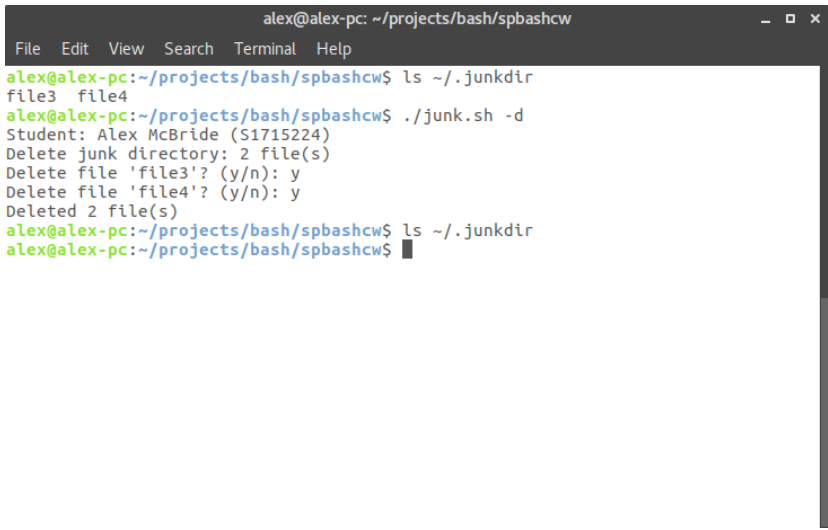
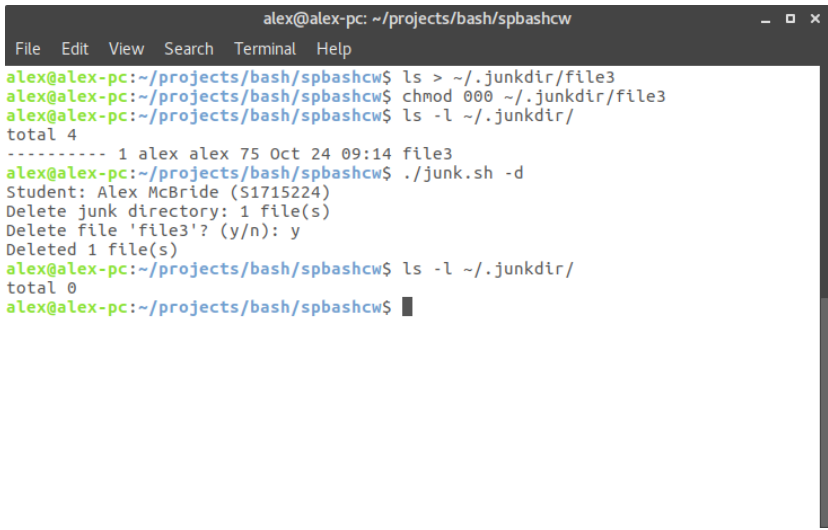| Test	017
Description	Test that recover when destination directory not writable displays appropriate error message
Input	• chmod 444 . • ./junk.sh -r file3 • chmod 755 .
Expected	Message displayed: "Error: destination directory '.' not writable"
Actual	As expected
Screen	

Test	018
Description	Test that recover when file already exists displays appropriate error
Input	• ls > ./junkdir/file3 • ./junk.sh -r file3
Expected	Message displayed: "Error: destination file './file3' already exists"
Actual	As expected
Screen	

Screen content:

```
alex@alex-pc: ~/projects/bash/spbashcw
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ls > file3
alex@alex-pc:~/projects/bash/spbashcw$ ls
file1  file3          junk-manual.txt  Test Cases.docx
file2  junk-manual.1  junk.sh          watch.sh
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir/
file3  file4
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -r file3
Student: Alex McBride (S1715224)
Error: destination file './file3' already exists
alex@alex-pc:~/projects/bash/spbashcw$ rm file3
alex@alex-pc:~/projects/bash/spbashcw$
```
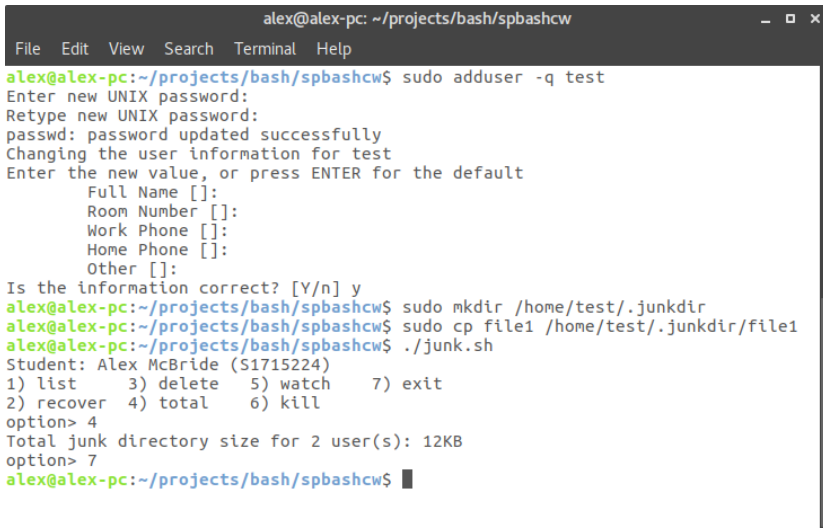
Test	019
Description	Test that list switch (-l) lists contents of junkdir
Input	• ./junk.sh -l • ls -l ~/.junkdir

Expected	The following output is displayed:
	
	`Junk directory list: 2 file(s)`
	`Name          KB          Type`
	`----------    ----------    ----------`
	`file3         4           ASCII text`
	`file4         4           ASCII text`
	
	That matches the output of ls:
	
	`total 8`
	`-rw-r--r-- 1 alex alex 81 Oct 24 08:02 file3`
	`-rw-r--r-- 1 alex alex 81 Oct 24 08:27 file4`
	
	Note: the bytes in files may vary depending on the files used

Actual	As expected
Screen	

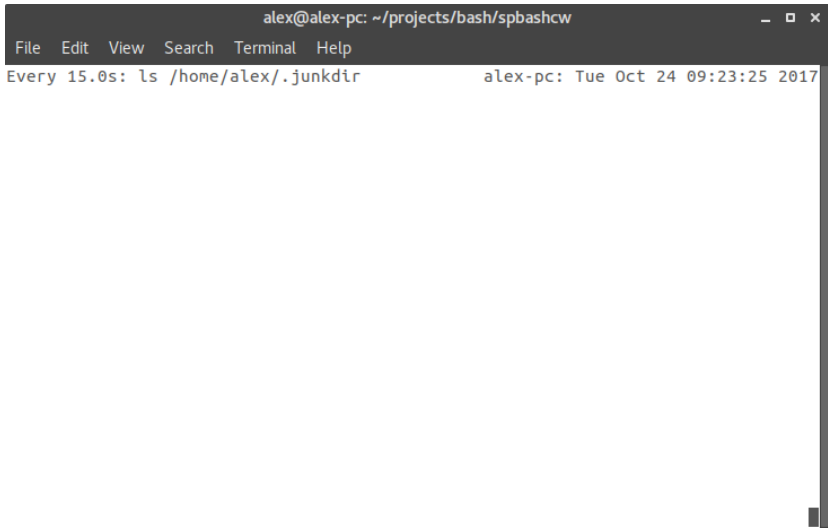| Test	020
Description	Test that list menu option lists contents of junkdir
Input	• ./junk.sh • Select 1 from menu and press enter • Select 7 to exit • ls -l ~/.junkdir

Expected	The following output is displayed:
	
	`Junk directory list: 2 file(s)`
	`Name           KB              Type`
	`----------   -----------   ----------`
	`file3          4               ASCII text`
	`file4          4               ASCII text`
	
	That matches the output of:
	
	`total 8`
	`-rw-r--r-- 1 alex alex 81 Oct 24 08:02 file3`
	`-rw-r--r-- 1 alex alex 81 Oct 24 08:27 file4`
	
	Note: the bytes in files may vary depending on the files used

Actual	As expected
Screen	

Test	021
Description	Test that delete option interactively deletes files
Input	• Create a file1 if it doesn't exist ls > ~/.junkdir/file1 • ./junk.sh • Select option 3 and press enter • Enter 'y' when asked to delete file1 • Enter 'n' when asked to delete file3 • Enter 'x' when asked to delete file4 • Enter 'n' when asked to delete file3 again • Enter 7 to exit • ls ~/.junkdir
Expected	• The file 'file1' should be removed from junkdir • The file 'file3' should still be present in junkdir • The message 'Invalid input' should be displayed for 'x' • The file 'file4' should remain in junkdir • The message "Deleted 1 file(s)" should be displayed before exit of script
Actual	As expected
Screen	

```
alex@alex-pc: ~/projects/bash/spbashcw                    _ □ ×

File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ls > ~/.junkdir/file1
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir
file1  file3  file4
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh
Student: Alex McBride (S1715224)
1) list      3) delete   5) watch    7) exit
2) recover   4) total    6) kill
option> 3
Delete junk directory: 3 file(s)
Delete file 'file1'? (y/n): y
Delete file 'file3'? (y/n): n
Delete file 'file4'? (y/n): x
Invalid input
Delete file 'file4'? (y/n): n
Deleted 1 file(s)
option> 7
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir
file3  file4
alex@alex-pc:~/projects/bash/spbashcw$
```
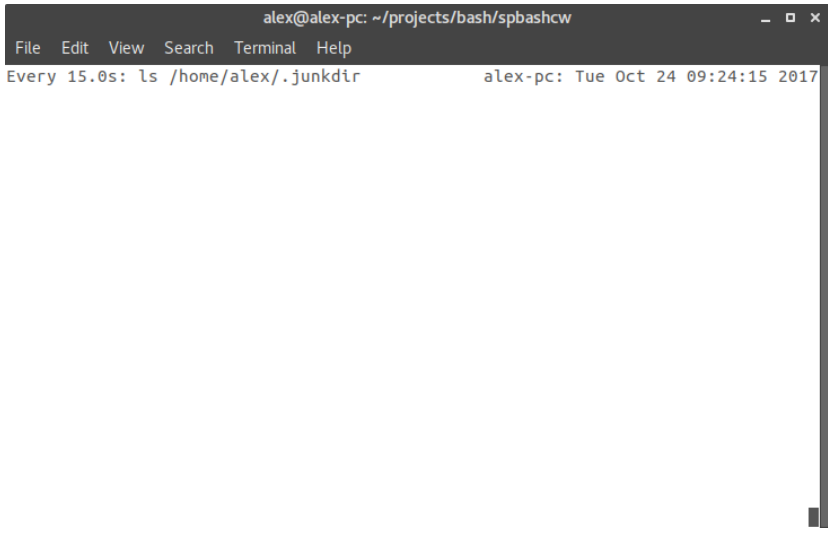
Test	022
Description	Test that delete switch (-d) interactively deletes files
Input	• ./junk.sh -d • Enter 'y' when asked to delete file2 • Enter 'y' when asked to delete file3 • ls ~/.junkdir
Expected	• The message "Deleted 2 file(s)" should be displayed • The file 'file2' should be removed from junkdir • The file 'file3' should be removed from junkdir
Actual	As expected
Screen	


```
alex@alex-pc: ~/projects/bash/spbashcw                    _ □ ×
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir
file3  file4
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -d
Student: Alex McBride (S1715224)
Delete junk directory: 2 file(s)
Delete file 'file3'? (y/n): y
Delete file 'file4'? (y/n): y
Deleted 2 file(s)
alex@alex-pc:~/projects/bash/spbashcw$ ls ~/.junkdir
alex@alex-pc:~/projects/bash/spbashcw$ █
```
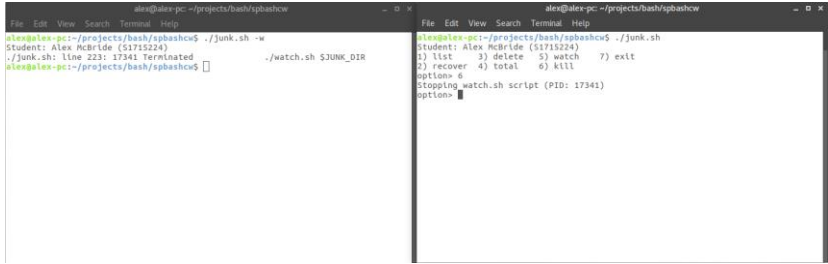
Test	023
Description	Test that delete with write-protected file still deletes
Input	• ls > ~/.junkdir/file3 if it does not exist • chmod 000 ~/.junkdir/file3 • ./junk.sh -d • Press 'y' when asked to delete 'file3' • ls ~/.junkdir
Expected	• The message "Deleted 1 file(s)" should be displayed • The file 'file3' should be removed from junkdir
Actual	As expected
Screen	

```
                    alex@alex-pc: ~/projects/bash/spbashcw          _  □  ×
  File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ls > ~/.junkdir/file3
alex@alex-pc:~/projects/bash/spbashcw$ chmod 000 ~/.junkdir/file3
alex@alex-pc:~/projects/bash/spbashcw$ ls -l ~/.junkdir/
total 4
---------- 1 alex alex 75 Oct 24 09:14 file3
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -d
Student: Alex McBride (S1715224)
Delete junk directory: 1 file(s)
Delete file 'file3'? (y/n): y
Deleted 1 file(s)
alex@alex-pc:~/projects/bash/spbashcw$ ls -l ~/.junkdir/
total 0
alex@alex-pc:~/projects/bash/spbashcw$ █
```
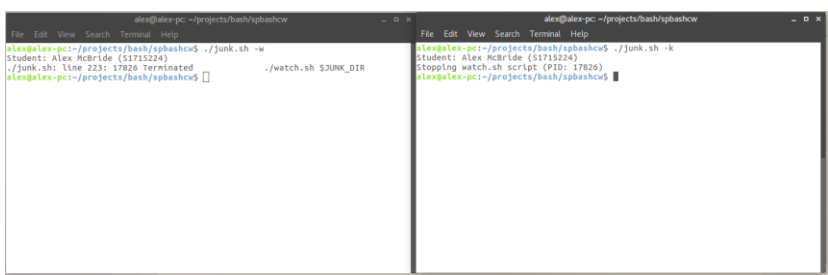
Test	024
Description	Test that total menu option shows list of total files for all users, for this test we will add a user called test, create their junk directory, and add a file
Input	• sudo adduser -q test • sudo mkdir /home/test/.junkdir • sudo cp file1 /home/test/.junkdir • ./junk.sh • Enter option 4 • Enter 7 to exit
Expected	The message "Total junk directory size for 2 user(s): 12KB" *Note: the actual byte size will vary based on files in user directories and their sizes*
Actual	As expected
Screen	

Test	025
Description	Test that total switch (-t) shows list of total files for all users
Input	./junk.sh -t - sudo deluser test - sudo rm -r /home/test
Expected	The message "Total junk directory size for 2 user(s): 12KB" *Note: the actual byte size will vary based on files in user directories and their sizes*
Actual	As expected
Screen	

Screen terminal contents:

```
alex@alex-pc: ~/projects/bash/spbashcw                    _ □ ×
File  Edit  View  Search  Terminal  Help
alex@alex-pc:~/projects/bash/spbashcw$ ./junk.sh -t
Student: Alex McBride (S1715224)
Total junk directory size for 2 user(s): 12KB
alex@alex-pc:~/projects/bash/spbashcw$ sudo deluser test
Removing user `test' ...
Warning: group `test' has no more members.
Done.
alex@alex-pc:~/projects/bash/spbashcw$ sudo rm -r /home/test
alex@alex-pc:~/projects/bash/spbashcw$ ▮
```

Test	026
Description	Test that watch script is started from menu option
Input	• ./junk.sh • Type 5 and press enter
Expected	The watch command for the junkdir is displayed. *Note: press ctrl+c to exit*
Actual	As expected
Screen	

alex@alex-pc: ~/projects/bash/spbashcw

File   Edit   View   Search   Terminal   Help

Every 15.0s: ls /home/alex/.junkdir   alex-pc: Tue Oct 24 09:23:25 2017

Test	027
Description	Test that watch script is started from switch (-w)
Input	./junk.sh -w
Expected	The watch command for the junkdir is displayed. *Note: press ctrl+c to exit*
Actual	As expected
Screen	 alex@alex-pc: ~/projects/bash/spbashcw _ □ × File Edit View Search Terminal Help Every 15.0s: ls /home/alex/.junkdir alex-pc: Tue Oct 24 09:24:15 2017

Test	028
Description	Test that watch script can be killed with the kill menu option
Input	- Run ./junk.sh -w in first terminal - In second terminal run: ./junk.sh - Type 6 and press enter - Type 7 and press enter to exit
Expected	- The watch command running in the first terminal is stopped and you are returned to the prompt. - In the second terminal the message is displayed: "Stopping watch.sh script (PID: <PID>)"
Actual	As expected
Screen	

Test	029
Description	Test that watch script can be killed with a switch (-k)
Input	• Run ./junk.sh -w in first terminal • In second terminal run: ./junk.sh -k
Expected	• The watch command running in the first terminal is stopped and you are returned to the prompt. • In the second terminal the message is displayed: "Stopping watch.sh script (PID: <PID>)"
Actual	As expected
Screen	