

CSC209 Week 3 Notes

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Shell Programming 4 of 6

- I/O redirection
- File Descriptors
 - **0**: Standard Input
 - **1**: Standard Output
 - * Channels all output

```
1  cat sample.txt
2  hello!
3  hi!
4  it's a pleasure to meet you
5  >>> cat sample.txt> output.log
6  >>> cat sample.txt1> output.log # identical
7  >>> cat output.log
8  hello!
9  hi!
10 it's a pleasure to meet you
11
```

- **2**: Standard Error
 - * Channels all error output

```
1  >>> cat 2> error.log
2
```

- `$#`

- Returns number of command line arguments

```
1  >>> cat arg_number_check_example.sh
2  if [ $# -ne 2 ]
3  then
4      echo usage: arg_number_check_example.sh x y >& 2
5      exit 1
6  fi
```

```
7
8  expr $1 + $2
9  >>> arg_number_check_example.sh 2
10 usage: arg_number_check_example.sh x y
11
```

- $\$@$
- $\${x}$