

# CSC209 Week 3 Notes

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## Shell Programming 4 of 6

- I/O redirection

- `>>`: appends line to file
- `2>&1`: redirects *stderr* to the same file as *stdout*

```
1 >>> sh arg_number_check_example.sh > test_output.txt 2>&1
2 >>> sh arg_number_check_example.sh 2 3 >> test_output.txt 2>&1
3 >>> cat test_output.txt
4 usage: arg_number_check_example.sh x y
5 5
6
```

- 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}`