INTRODUCTION
cesium
centro de estudantes
de engenharia informática
da universidade do minho
UNIX BASED SYSTEMS
UNIX BASED SYSTEMS

+ STABILITY
+ PERFORMANCE
+ SCALABILITY
+ COMPATIBILITY

− PRICE

VS WINDOWS
WHAT IS BASH?

WHAT DOES IT MEAN?

ADVANTAGES?
HOW TO DEAL WITH BASH?
SOME REQUIRED COMMANDS
LIST

```
ls -a -l
```

ALL FILES
LONG FORMAT

MAKE DIRECTORY

```
mkdir [OPT] DIR
```

MAKE PARENTS

```
mkdir -p
```
- Change directory: `cd PATH`
- Current directory: `~`
- Parent directory: `..`
- Home directory: `HOME DIR`
- Print working directory: `pwd`
- Create empty file: `touch FILE`
COPY

```
cp [OPT] FROM TO
```

- `r`
  COPY DIRECTORIES RECURSIVELY

MOVE OR RENAME

```
mv FROM TO
```
**REMOVE**

`rm [OPT] FILE`

- `-r` RECURSIVELY REMOVE DIRECTORIES
- `-f` FORCE

**REMOVE DIRECTORY**

`rmdir [OPT] DIR`

- `-p` PARENTS
**Concatenate and Print Files**

- `cat [OPT] FILES`
  - `-n` Number the output lines

**View File**

- `less [OPT] FILE`
  - `-n` Number the output lines
# LESS FREQUENT COMMANDS

<table>
<thead>
<tr>
<th>Key</th>
<th>COMMAND</th>
<th>Key</th>
<th>COMMAND</th>
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<tbody>
<tr>
<td>Space</td>
<td>NEXT PAGE</td>
<td>/&lt;text&gt;</td>
<td>FOWARD SEARCH FOR &lt;TEXT&gt;</td>
</tr>
<tr>
<td>b</td>
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<td>?&lt;text&gt;</td>
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<td>j</td>
<td>NEXT LINE</td>
<td>n</td>
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<td>k</td>
<td>PREVIOUS LINE</td>
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<td>PREVIOUS SEARCH MATCH</td>
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<tr>
<td>g</td>
<td>FIRST LINE</td>
<td>=</td>
<td>FILE INFORMATION</td>
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<tr>
<td>G</td>
<td>LAST LINE</td>
<td>h</td>
<td>HELP</td>
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<tr>
<td>&lt;n&gt;G</td>
<td>LINE &lt;n&gt;</td>
<td>q</td>
<td>QUIT</td>
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</table>
DISPLAY
FIRST LINES

head [OPT] FILE

- n  FIRST N LINES

DISPLAY
LAST LINES

tail [OPT] FILE

- n  LAST N LINES
PRINT LINES MATCHING A PATTERN

grep [OPT] PATTERN [FILE...]  

- c     DISPLAY THE NUMBER OF MATCHED LINES  
- i     IGNORE CASE SENSITIVITY  
- l     DISPLAY THE FILENAMES  
- n     DISPLAY THE LINE NUMBERS  
- w     MATCH WHOLE WORD
WORD COUNT

wc [OPT] FILE

-1 LINE COUNT
-c BYTE COUNT
-m CHARACTER COUNT
-w WORD COUNT
CTRL-KEY COMMANDS
KILL PROCESS
CTRL + C

STOP PROCESS
CTRL + Z

END OF FILE
CTRL + D
I/O REDIRECTION
COMMAND > FILE

COMMAND >> FILE

COMMAND < FILE
REDIRECT THE OUTPUT FROM ONE COMMAND AS INPUT TO THE NEXT ONE

COMMAND1 | COMMAND2 | COMMAND3
WILDCARDS
WHAT ARE WILDCARDS?
ANY NUMBER OF CHARACTERS

ANY SINGLE CHARACTER
SYSTEM AND SECURITY
UNIX PERMISSIONS

ALLOWS USERS TO RUN PROGRAMS WITH THE SECURITY PRIVILEGES OF ANOTHER USER

`sudo [OPT] [USER] COMMAND`

NORMALLY THE ROOT
# UNIX Permissions

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</tbody>
</table>

a = all

7
CHANGE PERMISSIONS

chmod [OPT] MODE FILE

- R  RECURSIVELY

+rx  READ AND EXECUTE FOR ALL

g-w  DENY WRITE ACCESS FOR GROUP

777  READ, WRITE AND EXECUTE FOR ALL
UNIX PROCESSES

- COMMAND & jobs
- kill SIGNAL PROCESS
- killall PROCESS

- RUN PROCESS ON BACKGROUND
- BACKGROUND OR SUSPENDED PROCESSES
- SEND SIGNAL TO A PROCESS
- KILL PROCESS BY NAME
DISPLAY TOP CPU PROCESSES

**top**

REPORTS THE PROCESS STATUS

**ps**

- **-e** ALL PROCESSES
- **-f** FULL LISTING
LAST BUT NOT LEAST
WALK A FILE HIERARCHY

find PATH [OPT] [EXPRESSION]

- name  FIND BY NAME
- size  FIND BY SIZE
- iname CASE INSENSITIVE MODE