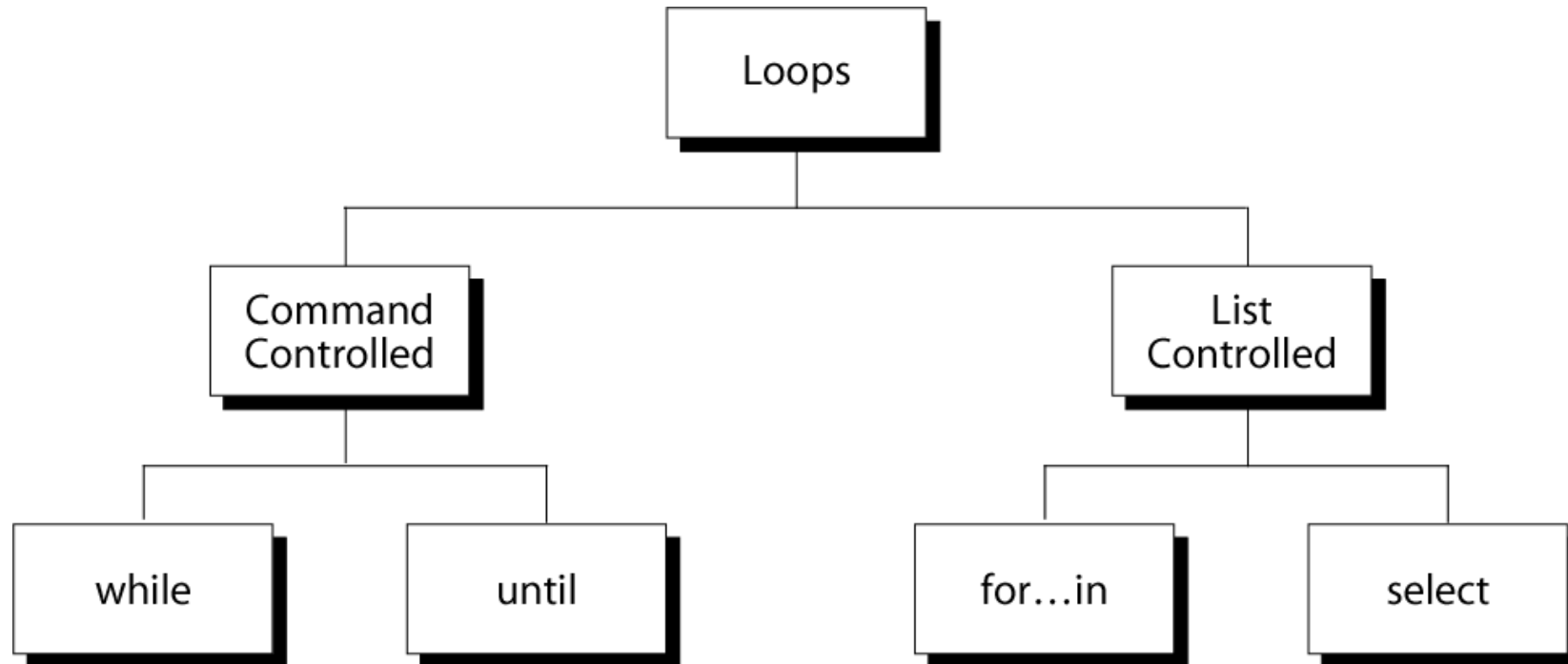


# REPETITION CONSTRUCTS



# THE WHILE LOOP

- Purpose:

To execute commands in “command-list” as long as “expression” evaluates to true

Syntax:

```
while [ expression ]  
do  
    command-list  
done
```

## EXAMPLE: USING THE WHILE LOOP

```
#!/bin/bash
```

```
COUNTER=0
```

```
while [ $COUNTER -lt 10 ]
```

```
do
```

```
    echo The counter is $COUNTER
```

```
    COUNTER=`expr $COUNTER + 1`
```

```
done
```

## EXAMPLE: USING THE WHILE LOOP

```
#!/bin/bash
```

```
Cont="Y"
```

```
while [ $Cont = "Y" ]; do
```

```
    ps -A
```

```
    read -p "want to continue? (Y/N)" reply
```

```
    Cont=`echo $reply | tr [:lower:] [:upper:]`
```

```
done
```

```
echo "done"
```

# PRINT TABLE

```
read -p "Enter a number: " number

i=1

while [ $i -le 10 ]

do

    echo "$number x $i = $(($number*i))"

    i=$((i+1))

done
```

## EXAMPLE: USING THE WHILE LOOP

```
#!/bin/bash
```

```
x=1
```

```
while [ $x -le 5 ]; do
```

```
    echo "Welcome $x times"
```

```
    x=$(( $x + 1 ))
```

```
done
```

# THE UNTIL LOOP

- Purpose:

To execute commands in “command-list” as long as “expression” evaluates to false

Syntax:

```
until [ expression ]  
do  
    command-list  
done
```

## EXAMPLE: USING THE UNTIL LOOP

```
#!/bin/bash
```

```
COUNTER=20
```

```
until [ $COUNTER -lt 10 ]
```

```
do
```

```
    echo $COUNTER
```

```
    let COUNTER-=1
```

```
done
```



## EXAMPLE: USING THE UNTIL LOOP

```
#!/bin/bash
```

```
Stop="N"
```

```
until [ $Stop = "Y" ]; do
```

```
    ps -A
```

```
    read -p "want to stop? (Y/N)" reply
```

```
    Stop=`echo $reply | tr [:lower:] [:upper:]`
```

```
done
```

```
echo "done"
```

# THE FOR LOOP

- Purpose:

To execute commands as many times as the number of words in the “argument-list”

Syntax:

```
for variable in argument-list  
  
do  
  
    commands  
  
done
```

## EXAMPLE 1: THE FOR LOOP

```
#!/bin/bash
```

```
for i in 7 9 2 3 4 5
```

```
do
```

```
    echo $i
```

```
done
```

## EXAMPLE 2: USING THE FOR LOOP

```
#!/bin/bash
# compute the average weekly temperature

for num in 1 2 3 4 5 6 7
do
    read -p "Enter temp for day $num: " Temp
    let TempTotal=TempTotal+Temp
done

let AvgTemp=TempTotal/7
echo "Average temperature: " $AvgTemp
```

## USING COMMA IN THE BASH C-STYLE FOR LOOP

```
#!/bin/bash
```

```
for ((i=1, j=10; i <= 5 ; i++, j=j+5))
```

```
do
```

```
echo "Number $i: $j"
```

```
done
```

## PATTERN / NESTED FOR

```
Read -p "rows= " rows

for((i=1; i<=rows; i++))

do

    for((j=1; j<=i; j++))

        do

            echo -n "$j "

        done

    echo

done
```

# gzip

- **gzip** – is a compression tool

- Usage:

**gzip** [options] *file*

- Eg:-

# gzip a.txt

# gzip -l a.txt

tells compression ratio

# gunzip

- **gunzip** – To decompress a file

- Usage:

**gunzip** [options] *file*

- Eg:-

# gunzip a.txt.gz





# Zip & unzip

- **zip** – ZIP is a compression and file packaging utility for Unix.

- Usage:

**zip** [options] *file.zip f1 f2 f3*

- d : delete

- u: add

- r : directory

- Eg:-

- # zip a.zip a b c



# unzip

- **unzip** – ZIP is a decompression and file unpackaging utility for Unix.

- Usage:

**unzip** [options] *filename*

-d : extract to other dir

-l: to see contain of zip file

Eg:-

# unzip a.zip

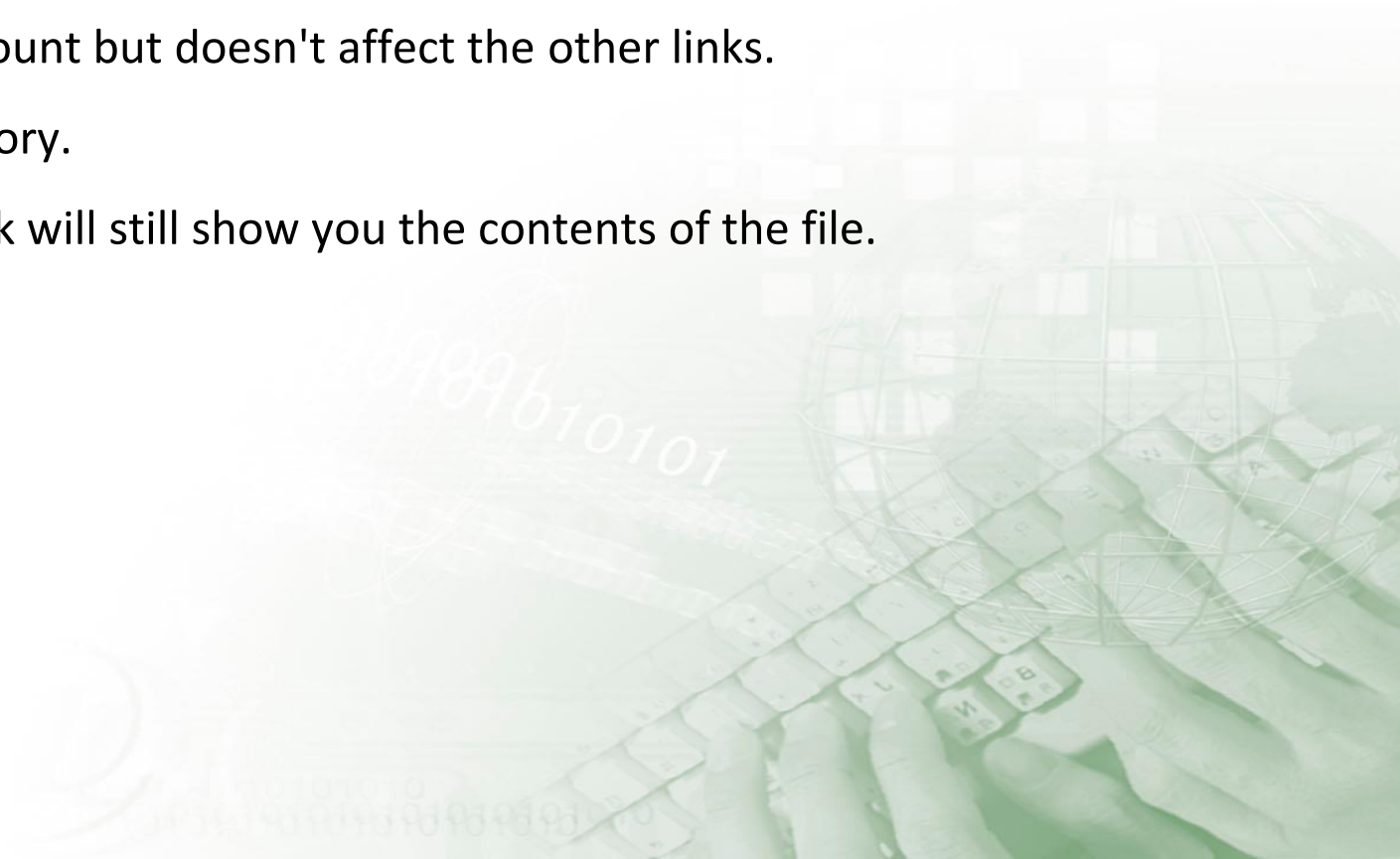
# unzip a.zip -d /dir

# Links

## HARD LINKS

1. Hard Links have same inodes number.
2. `ls -l` command shows all the links with the link column showing the number of links.
3. Links have actual file contents
4. Removing any link, just reduces the link count but doesn't affect the other links.
5. You cannot create a Hard Link for a directory.
6. Even if the original file is removed, the link will still show you the contents of the file.

**In filename linkname**



# Symbolic (or Soft) Links

- A symbolic link points to another file
- **ls -l** displays the link name and the referenced file
- File type: **l** for symbolic link
- The content of a symbolic link is the name of the file that it references
- Syntax:

**ln -s filename *linkname***

- Eg:     # ln -s /etc/passwd password  
          # ls -li /etc/passwd password  
          different inode number