Chapter 4

Variables

Overview
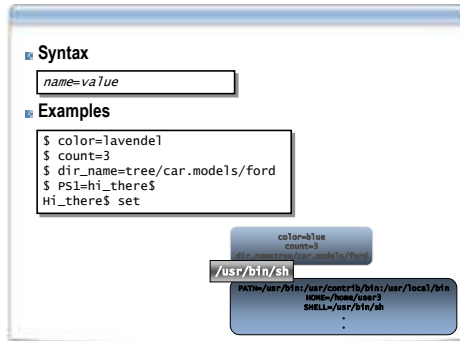
- Shell Variables
- The shell environment
- Substitution

Lesson: Shell variables

```
              color=blue
              count=3
        dir_name=/home/user3/tree
/usr/bin/sh
                      PS1=$
    PATH=/usr/bin:/usr/contrib/bin:/usr/local/bin
              HOME=/home/user3
                   TERM=vt100
              SHELL=/usr/bin/sh
```
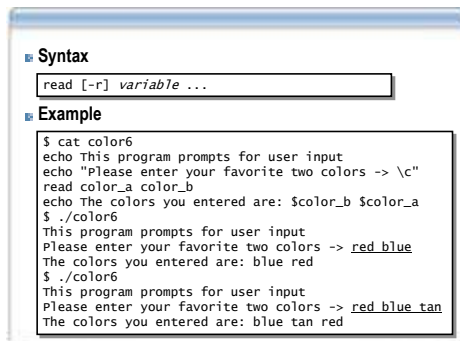
Setting Shell Variables

Syntax

```
name=value
```

Examples

```
$ color=lavendel
$ count=3
$ dir_name=tree/car.models/ford
$ PS1=hi_there$
Hi_there$ set
```

```
color=blue
count=3
dir_name=tree/car.models/ford
/usr/bin/sh
PATH=/usr/bin:/usr/contrib/bin:/usr/local/bin
HOME=/home/user3
SHELL=/usr/bin/sh
.
.
```

Displaying Variable Values

```
$ echo $HOME
/home/stu05

$ env
HOME=/home/stu05
PATH=/usr/bin:/usr/controb/bin:/usr/local/bin
SHELL=/usr/bin/sh

$ set
HOME=/home/stu05
PATH=/usr/bin:/usr/contrib/bin:/usr/local/bin
SHELL=/usr/bin/sh
color=lavender
count=3
dir_name=/home/stu05/tree

$ unset dir_name
```

read – read a line from standard input

Syntax

```
read [-r] variable ...
```

Example

```
$ cat color6
echo This program prompts for user input
echo "Please enter your favorite two colors -> \c"
read color_a color_b
echo The colors you entered are: $color_b $color_a
$ ./color6
This program prompts for user input
Please enter your favorite two colors -> red blue
The colors you entered are: blue red
$ ./color6
This program prompts for user input
Please enter your favorite two colors -> red blue tan
The colors you entered are: blue tan red
```

Removing Variables

- **Syntax:**

```
unset [-fv] name ...
```

```
$ unset user_input
```

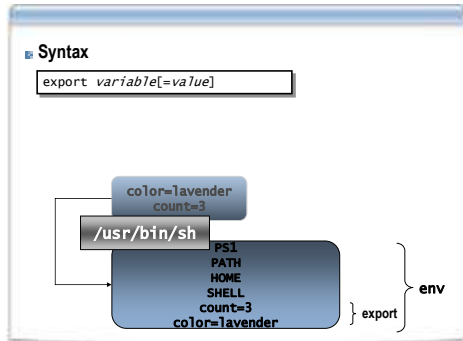| Variable	Value String
user_input	String from stdin
3	argc
2	argb
1	arga
0	prog.sh

Lesson: The shell environment

- **Passing variables to an application**
- **Transferring Local Variables to the Environment**

Passing variables to an application

```
$ vi
```


color=lavender
/usr/bin/sh
TERM=vt100

color=lavender
/usr/bin/sh
TERM=vt100

color=lavender
/usr/bin/sh
TERM=vt100

/usr/bin/vi
TERM=vt100

- **Step 1 fork**
- **Step 2 exec**

Transferring Local Variables to the Environment

Syntax

```
export variable[=value]
```
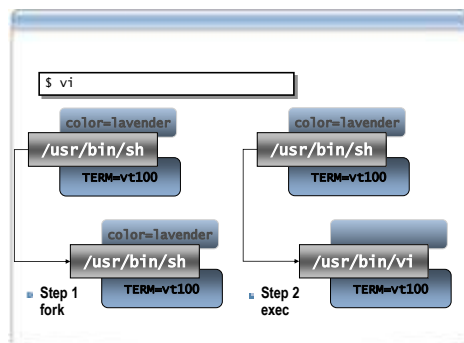
```
         color=lavender
            count=3
     /usr/bin/sh
                  PS1
                  PATH
                  HOME
                  SHELL        }  env
                  count=3
            color=lavender    } export
```

Using variables in shell scripts

```
$ color=lavender

$ cat color1
echo You are now running program: color1
echo the value of the variable color is: $color

$ ./color1
You are now running program: color1
the value of the variable color is:

$ export color
$ ./color1
You are now running program: color1
the value of the variable color is: lavender
```

Lesson: Substitution

- **Using Variable Contents**
- **Variable Expansion**
- **Command Substitution**

Using Variable Contents

Syntax

```
$name
${name}
```

Examples

```
$ echo $PATH
/usr/bin:/usr/contrib/bin:/usr/local/bin
$ PATH=$PATH:$HOME:.
$ echo $PATH
/usr/bin:/usr/contrib/bin:/usr/local/bin:/home/user3:.
$ echo $HOME
/home/user3
$ more $file_name
...
```

Variable Expansion

Syntax

${parameter:-word}	${parameter%word}
${parameter:=word}	${parameter%%word}
${parameter:?[word]]}	${parameter#word}
${parameter:+word}	${parameter##word}
${#parameter}	

Example

```
$ filename=utility.ksh
$ echo ${filename#*.}
ksh
$ echo ${filename%.ksh}
utility
```

Command Substitution

Syntax

```
$(command)
`command`
```

Examples

```
$ pwd
/home/stu02
$ curdir=$(pwd); echo $curdir
/home/stu02
$ cd /tmp; pwd
/tmp
$ cd $curdir; pwd
/home/stu02
```

Review Exercises

■ **Complete the exercises from the Learning Guide**

Topics for Review

1 Read the review topics

2 Think about what you learned in this Session in the context of your own work environment

3 Discuss your answers as a class