Shell Scripting 2020: Week

Stefan Ciprian Voinea
Student number: 015383372

November 22, 2020

31. **ASCII art**

Output of the execution:

Contents of the `task31_shortcat.sh` file:

data.txt

```
#!/bin/bash

belly_lines=$1
shortcat="task31_shortcat.txt"

re='^[0-9]+$'
if ! [[ $belly_lines =~ $re ]]
then
    echo "That's not a number chief"
    exit 1
fi

if [ $belly_lines -gt 1 ]
then
    head -n 8 $shortcat
    for i in $seq 1 $belly_lines
    do
        sed "9q;d" $shortcat
    done
    tail -n 6 $shortcat
else
    echo "Nope"
fi
```

32. **Plotting**

Contents of the `task32_create_random_data.sh` file:

data.txt

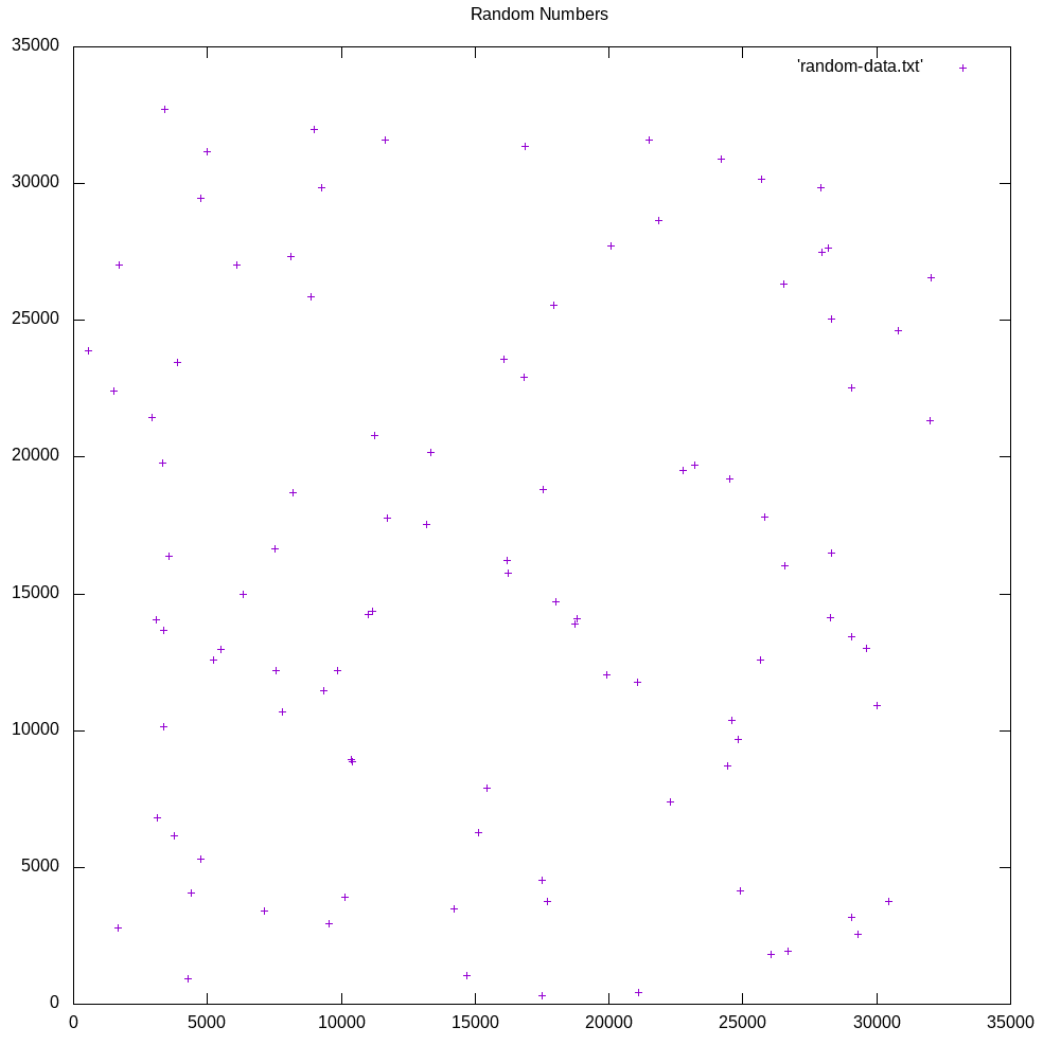
```
#!/bin/bash

output_file="task32_create_random_data.txt"

rm -f $output_file

for i in $seq 1 $1
do
    # echo $ $RANDOM % 10  $ $RANDOM % 10  >> $output_file
    echo $RANDOM $RANDOM >> $output_file
done

cat $output_file

# Plotting the data
gnuplot task32_create_random_data.p
```

Contents of the `task32_create_random_data.p` file:

data.txt

```
set terminal png size 1000,1000
set output 'task32_create_random_data.png'
set title 'Random Numbers'
plot 'task32_create_random_data.txt'
```

Output of the plot:



33. **Let's plot some real data points**

Contents of the `task33_plot_real_data.sh` file:

data.txt

```
#!/bin/bash

dirs=`find lost24/monitor/ -type d -name "2011.11.*"`
dirs=`echo $dirs  tr " " "\n"  sort -u`

output_file="task33_plot_real_data.txt"

rm -f $output_file

for day in $dirs
do

    max_temp_file=""
```

```
    max_temp=0

    for temp_file in `find $day -type f -name "*temps.txt"`
    do
        temp=`grep "PROCESSOR_ZONE *[0-9][0-9]C" $temp_file -s  cut -b 32-33`
        # echo $temp_file $temp
        if [ $temp -gt $max_temp ]
        then
            max_temp=$temp
            max_temp_file=$temp_file
        fi
    done

    day=${day##*/}
    day=${day: -2}

    echo $day : $max_temp \$max_temp_file\
    echo $day $max_temp >> $output_file

done

cat $output_file
gnuplot task33_plot_real_data.p
```

Contents of the `task33_plot_real_data.txt` file:

data.txt

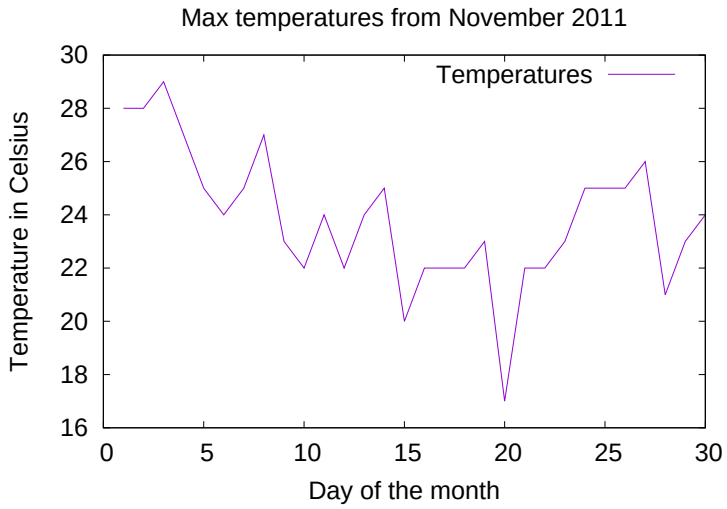
```
01 28
02 28
03 29
04 27
05 25
06 24
07 25
08 27
09 23
10 22
11 24
12 22
13 24
14 25
15 20
16 22
17 22
18 22
19 23
20 17
21 22
22 22
23 23
24 25
25 25
26 25
27 26
28 21
29 23
30 24
```

Contents of the `task33_plot_real_data.p` file:

data.txt

```
set term postscript eps color blacktext 'Helvetica' 24
set output 'task33_plot_real_data.eps'

set title 'Max temperatures from November 2011'
set xlabel 'Day of the month'
set ylabel 'Temperature in Celsius'

set style line 2 lt 1 lw 2 pt 1 linecolor 1

plot 'task33_plot_real_data.txt' u 1:2 t "Temperatures" pt 2 ps .1 with lines
```

Contents of the `task33_plot_real_data.eps` file, output of the execution:



34. **Let's put some context**

Contents of the `task34_plot_min-max-temps-2011-11.sh` file:

data.txt

```
#!/bin/bash

dirs=`find lost24/monitor/ -type d -name "2011.11.*"`
dirs=`echo $dirs  tr " " "\n"  sort -u`

output_file="task34_plot_min-max-temps-2011-11.txt"

rm -f $output_file

for day in $dirs
do

    max_temp_file=""
    max_temp=0
```

```
    min_temp_file=""
    min_temp=99

    for temp_file in `find $day -type f -name "*temps.txt"`
    do
        temp=`grep "PROCESSOR_ZONE *[0-9][0-9]C" $temp_file -s  cut -b 32-33`
        # echo $temp_file $temp
        if [ $temp -gt $max_temp ]
        then
            max_temp=$temp
            max_temp_file=$temp_file
        fi
        if [ $temp -lt $min_temp ]
        then
            min_temp=$temp
            min_temp_file=$temp_file
        fi
    done

    day=${day##*/}
    day=${day: -2}

    echo MAX TEMP $day : $max_temp \$max_temp_file\
    echo MIN TEMP $day : $min_temp \$min_temp_file\
    echo $day $max_temp $min_temp >> $output_file
    echo

done

# cat $output_file
gnuplot task34_plot_min-max-temps-2011-11.p
```

Contents of the `task34_plot_min-max-temps-2011-11.txt` file:

data.txt

```
01 28 22
02 28 25
03 29 26
04 27 22
05 25 22
06 24 21
07 25 21
08 27 22
09 23 14
10 22 14
11 24 19
12 22 18
13 24 20
14 25 19
15 20 15
16 22 15
17 22 21
18 22 20
19 23 15
20 17 11
21 22 11
22 22 18
```

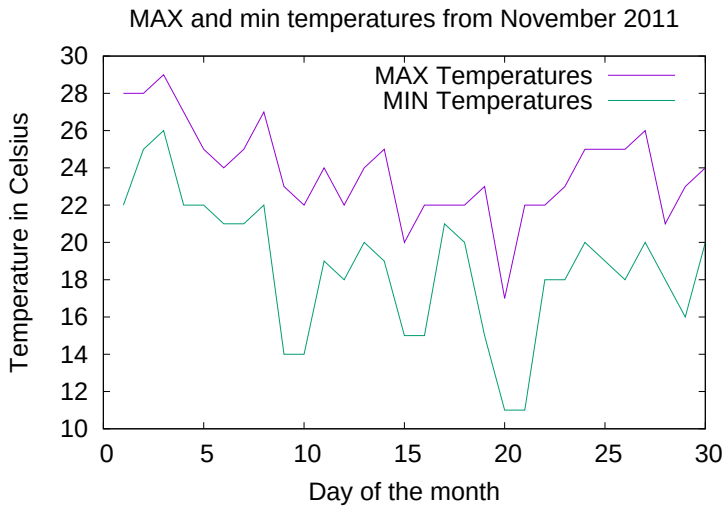
```
23 23 18
24 25 20
25 25 19
26 25 18
27 26 20
28 21 18
29 23 16
30 24 20
```

Contents of the `task34_plot_min-max-temps-2011-11.p` file:

data.txt

```
set term postscript eps color blacktext 'Helvetica' 24
set output 'task34_plot_min-max-temps-2011-11.eps'

set title 'MAX and min temperatures from November 2011'
set xlabel 'Day of the month'
set ylabel 'Temperature in Celsius'

set style line 2 lt 1 lw 2 pt 1 linecolor 1

plot 'task34_plot_min-max-temps-2011-11.txt' u 1:2 t "MAX Temperatures" pt 2 ps .1 with
↪  lines, \
     'task34_plot_min-max-temps-2011-11.txt' u 1:3 t "MIN Temperatures" pt 2 ps .1 with
     ↪  lines
```

Contents of the `task34_plot_min-max-temps-2011-11.eps` file, output of the execution:



35. **Let's generalize**

Contents of the `task35_plot_min-max-tempsgeneralized.sh` file:

data.txt

```
#!/bin/bash

input_dir=$1
```

```
# Example input lost24/monitor/2011.10
dirs=`find ./ -type d -maxdepth 3 -wholename "*$input_dir*" 2>/dev/null`
dirs=`echo $dirs  tr " " "\n"  sort -u`

output_file="task35_plot_min-max-temps_generalized.txt"

rm -f $output_file

for day in $dirs
do

    max_temp_file=""
    max_temp=0

    min_temp_file=""
    min_temp=99

    for temp_file in `find $day -type f -name "*temps.txt"`
    do
        temp=`grep "PROCESSOR_ZONE *[0-9][0-9]C" $temp_file -s  cut -b 32-33`
        # echo $temp_file $temp
        if [ $temp -gt $max_temp ]
        then
            max_temp=$temp
            max_temp_file=$temp_file
        fi
        if [ $temp -lt $min_temp ]
        then
            min_temp=$temp
            min_temp_file=$temp_file
        fi
    done

    day=${day##*/}
    day=${day: -2}

    echo MAX TEMP $day : $max_temp \$max_temp_file\
    echo MIN TEMP $day : $min_temp \$min_temp_file\
    echo $day $max_temp $min_temp >> $output_file
    echo

done

# cat $output_file
gnuplot task35_plot_min-max-temps_generalized.p
```

Contents of the `task35_plot_min-max-tempsgeneralized.txt` file:

data.txt

```
20 28 22
21 25 19
22 28 20
23 26 20
24 30 23
25 29 22
26 26 22
27 25 22
```

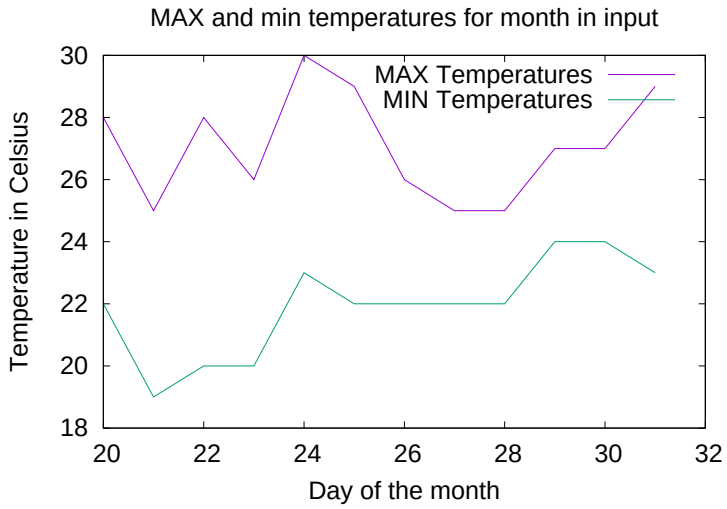
```
28 25 22
29 27 24
30 27 24
31 29 23
```

Contents of the `task35_plot_min-max-tempsgeneralized.p` file:

data.txt

```
set term postscript eps color blacktext 'Helvetica' 24
set output 'task34_plot_min-max-temps_generalized.eps'

set title 'MAX and min temperatures for month in input'
set xlabel 'Day of the month'
set ylabel 'Temperature in Celsius'

set style line 2 lt 1 lw 2 pt 1 linecolor 1

plot 'task35_plot_min-max-temps_generalized.txt' u 1:2 t "MAX Temperatures" pt 2 ps .1 with
↪  lines, \
     'task35_plot_min-max-temps_generalized.txt' u 1:3 t "MIN Temperatures" pt 2 ps .1 with
     ↪  lines
```

Contents of the `task35_plot_min-max-temps_generalized.eps` file, output of the execution:



36. **Let's make more refined commands**