1. 判断系统时间时段（早 / 中 / 晚）

在终端输入 gedit time_check.sh 创建脚本文件，粘贴代码后保存并退出

```
#!/bin/bash
hour = `date +%H`
case $hour in
0[1-9] | 1[01] )
echo "Good morining !!"
;;
1[234567] )
echo "Good afternoon !!"
;;
* )
echo "Good evening !! "
;;
Esac
```

赋予执行权限：chmod +x time_check.sh，运行脚本：./time_check.sh，终端会根据当前时间输出对应问候语

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./time_check.sh
./time_check.sh: 行 2: hour: 未找到命令
./time_check.sh: 行 13: 未预期的符号 `newline' 附近有语法错误
./time_check.sh: 行 13: `Esac'
b23041310matao@b23041310matao-virtual-machine:~$
```

存在错误：

变量赋值错误：hour = `date +% H`中等号两侧有空格（Shell 变量赋值不能有空格）

结束符错误：Esac 应为小写 esac（Shell 语法区分大小写）

修改代码

```
#!/bin/bash
hour=`date +%H`
case $hour in
0[1-9] | 1[01] )
    echo "Good morining !!"
    ;;
1[234567] )
    echo "Good afternoon !!"
    ;;
* )
    echo "Good evening !! "
    ;;
esac
```

赋予执行权限并运行脚本

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./time_check.sh
./time_check.sh: 行 2: hour: 未找到命令
./time_check.sh: 行 13: 未预期的符号 `newline' 附近有语法错误
./time_check.sh: 行 13: `Esac'
b23041310matao@b23041310matao-virtual-machine:~$ gedit time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./time_check.sh
Good afternoon !!
b23041310matao@b23041310matao-virtual-machine:~$
```

2. 比较两个整数大小

创建文件：gedit num_compare.sh，写入代码并保存退出

```
#!/bin/sh
echo "Enter the first integer:"
read first
echo "Enter the second integer:"
read second
if [ "$first" -gt "$second" ]
then
echo "$first is greater than $second"
elif [ "$first" -lt "$second" ]
then
echo "$FIRST is less than $second"
else
echo "$FIRST is equal to $second"
fi
```

添加权限：chmod +x num_compare.sh，运行脚本：./num_compare.sh，按提示输入两个整数（如 5 和 3），终端会输出比较结果

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit num_compare.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x num_compare.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./num_compare.sh
Enter the first integer:
5
Enter the second integer:
3
5 is greater than 3
b23041310matao@b23041310matao-virtual-machine:~$
```

3. 查找列表中的最小值

创建文件：gedit find_min.sh，写入代码并保存退出

```
#!/bin/bash
smallest=10000
for i in 8 2 18 0 -3 87
do
if test $i -lt $smallest
then
smallest=$i
fi
done
echo $smallest
```

授权运行：chmod +x find_min.sh，执行脚本：./find_min.sh，终端会输出列表最小值-3

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit find_min.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x find_min.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./find_min.sh
-3
b23041310matao@b23041310matao-virtual-machine:~$
```

4. 统计当前目录可执行文件数量

创建文件：gedit count_exec.sh，写入代码并保存退出

```
#!/bin/bash
count=0
for i in *
do
if test -x $i
then
count=`expr $count + 1`
fi
done
echo Total of $count files executable
```

授权运行：chmod +x count_exec.sh，执行脚本：./count_exec.sh，终端会输出当前目录可执行文件总数

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit count_exec.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x count_exec.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./count_exec.sh
Total of 16 files executable
b23041310matao@b23041310matao-virtual-machine:~$
```

直接输入命令：ls，按下回车，终端会显示当前目录下的文件列表

```
b23041310matao@b23041310matao-virtual-machine:~$ ls
aes_test.txt        cipher.txt          matao2.txt          rsa_private.key  模板
B23041310           count_exec.sh       num_compare.sh      rsa_public.key   视频
B23041310.txt       decrypt1.txt        page_rep            sample           图片
ca.crt              decrypt2.txt        page_replacement.c  sample.c         文档
cbc_base64.enc      ecb_base64.enc      page.txt            sample.o         下载
cbc_no_base64.enc   ecb_no_base64.enc   process_image       sign.sha256      音乐
cert.p12            examples.desktop    process_image.c     time_check.sh    桌面
cipher.enc          find_min.sh         result.txt          公共的
b23041310matao@b23041310matao-virtual-machine:~$
```

输入以下命令并回车：ls -l | grep -E "^-.*x"，终端显示的就是当前目录下普通文件中具有可执行权限的文件（排除了目录）

```
b23041310matao@b23041310matao-virtual-machine:~$ ls -l | grep -E "^-.*x"
-rw-rw-r-- 1 b23041310matao b23041310matao   112 11月 22 21:34 aes_test.txt
-rw-rw-r-- 1 b23041310matao b23041310matao    78 11月 22 22:31 B23041310.txt
-rw-rw-r-- 1 b23041310matao b23041310matao   184 11月 22 21:36 cipher.txt
-rwxrwxr-x 1 b23041310matao b23041310matao   123 12月  3 14:27 count_exec.sh
-rw-rw-r-- 1 b23041310matao b23041310matao     0 11月 22 21:55 decrypt1.txt
-rw-rw-r-- 1 b23041310matao b23041310matao     0 11月 22 21:58 decrypt2.txt
-rw-r--r-- 1 b23041310matao b23041310matao  8980 11月 13 14:01 examples.desktop
-rwxrwxr-x 1 b23041310matao b23041310matao   119 12月  3 14:22 find_min.sh
-rw-rw-r-- 1 b23041310matao b23041310matao    12 11月 21 10:15 matao2.txt
-rwxrwxr-x 1 b23041310matao b23041310matao   285 12月  3 14:13 num_compare.sh
-rwxrwxr-x 1 b23041310matao b23041310matao 17256 11月 30 19:37 page_rep
-rw-rw-r-- 1 b23041310matao b23041310matao   257 11月 30 19:45 page.txt
-rwxrwxr-x 1 b23041310matao b23041310matao  8576 11月 30 18:52 process_image
-rw-rw-r-- 1 b23041310matao b23041310matao  1546 11月 30 19:45 result.txt
-rwxrwxr-x 1 b23041310matao b23041310matao  8192 11月 30 16:26 sample
-rwxrwxr-x 1 b23041310matao b23041310matao   198 12月  3 14:06 time_check.sh
b23041310matao@b23041310matao-virtual-machine:~$
```

共有 16 个

5. 判断数字是否为质数，需自定义函数

创建文件：gedit check_prime.sh，写入代码并保存退出

```
#!/bin/bash
# 定义质数判断函数
prime()
{
    flag=1
    j=2
    # 处理输入为1的特殊情况（1不是质数）
    if [ $1 -eq 1 ]
    then
        flag=0
    else
        while [ $j -le `expr $1 / 2` ]
        do
            if [ `expr $1 % $j` -eq 0 ]
            then
                flag=0
                break
            fi
            j=`expr $j + 1`
        done
    fi
    if [ $flag -eq 1 ]
    then
        return 1
    else
        return 0
    fi
}

# 调用函数（需传入命令行参数）
if [ $# -ne 1 ]
then
    echo "Usage: $0 <positive_integer>"
    exit 1
fi

prime $1
if [ $? -eq 1 ]
then
    echo "$1 is a prime!"
else
    echo "$1 is not a prime!"
fi
```

授权运行：chmod +x check_prime.sh，执行脚本：./check_prime.sh ?，需传入一个正整数参数，若无参数：输出 Usage: ./check_prime.sh <positive_integer> 提示用法

```
b23041310matao@b23041310matao-virtual-machine:~$ gedit check_prime.sh
b23041310matao@b23041310matao-virtual-machine:~$ chmod +x check_prime.sh
b23041310matao@b23041310matao-virtual-machine:~$ ./check_prime.sh 7
7 is a prime!
b23041310matao@b23041310matao-virtual-machine:~$ ./check_prime.sh 4
4 is not a prime!
b23041310matao@b23041310matao-virtual-machine:~$ ./check_prime.sh 1
1 is not a prime!
b23041310matao@b23041310matao-virtual-machine:~$ ./check_prime.sh
Usage: ./check_prime.sh <positive_integer>
b23041310matao@b23041310matao-virtual-machine:~$
```