a) Write a shell script that computes the gross salary of a employee according to the following rules:

I. If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.

II. If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic

The basic salary is entered interactively through the key board.

b) Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

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$ vi gsalary.sh

```
echo  "enter the basic salary:"
read  bsal
if [  $bsal  -lt  1500 ]
then
gsal=$((bsal+((bsal/100)*10)+(bsal/100)*90))
echo  "The gross salary : $gsal"
fi
if [ $bsal  -ge  1500 ]
then
gsal=$(((bsal+500)+(bsal/100)*98))
echo  "the gross salary : $gsal"
fi
```

Output :

```
$ sh gsalary.sh
enter the basic salary:
1200
The gross salary : 2400
$ sh gsalary.sh
enter the basic salary:
2400
the gross salary : 5252
```

Salary: When a person works for someone else or company, (s)he is then said to hold a job and is called Employee . The person or the company he or she works for is called Employer. Money that is paid is called as Salary or Income or Wage.

The salary consists of following parts.

Basic Salary: As the name suggests, this forms the very basis of salary. This is the core of salary, and many other components may be calculated based on this amount. It usually depends on one's grade within the company's salary structure.It is a fixed part of one's compensation structure.

Allowance: It is the amount received by an individual paid by his/her employer in addition to salary to meet some service requirements such as Dearness Allowance(DA), House Rent Allowance (HRA), Leave Travel Assistance(LTA) , Lunch Allowance, Conveyance Allowance , Children's Education Allowance, City compensatory Allowance etc. Allowance can be fully taxable, partly or non taxable. One can read Understanding the components of your salary and their taxation for more details.

B) Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

[CSESTAFF@localhost foss]$ cat pow.sh

```
echo  "Enter the integer value :"
        read int1
        echo  "Enter the power of that integer:"
        read  int2
        pv=$int1
        i=1
        while [ $i -lt $int2 ]
        do
        pv=`expr  $pv  \*  $int1`
        i=`expr  $i  +  1 `
        done
    echo  "The value of first number to the power of the second number :"
        echo  "$pv"
```

[CSESTAFF@localhost foss]$ sh pow.sh

```
Enter the integer value :
6
Enter the power of that integer:
3
The value of first number to the power of the second number :
216
```

expr command:

Expr command performs arithmetic operations on integers. It can perform the four basic arithmetic operations, as well as the modulus (remainder function).

```
$ expr 5 + 10
15
$ a=10 b=5
$ expr $a + $b
15
$ expr $a / $b
2
$ expr $a * $b
expr: syntax error
$ expr $a \* $b
50
```

Metacharacters

Metacharacters are a group of characters that have special meanings to the UNIX operating system. Metacharacters can make many tasks easier by allowing you to redirect information from one command to another or to a file, string multiple commands together on one line, or have other effects on the commands they are issued in. The following table lists some of the metacharacters for the Rutgers default shell (the T shell).

Metacharacter	Description
	UNIX interprets a space as a separator not as a character.
*****	A wild card character that matches any group of characters of any length, allowing a user to specify a large group of items with a short string. For example, to specify all the files that start with 'abc', you use **abc***.
?	A wild card character that matches any single character. Thus **ls ???** lists files in the current directory whose names are only three characters long, while **ls ???.*** lists those files with a three letter main name and any extension.
[..]	A set of characters that can be matched. Thus **ls [a-c]*.???** lists all files that begin with a, b, or c and have a three letter extension and **lpr [ad]*** prints all files that begin with a or d.
$	Indicates that the following text is the name of a shell (environment) variable whose value is to be used.
|	Separates commands to form a pipe (see redirection in "Intermediate Use Of The UNIX Operating System").
<	Redirect the standard input (see redirection in "Intermediate Use Of The UNIX Operating System").
>	Redirect the standard output (see redirection in "Intermediate Use Of The UNIX Operating System") to replace current contents.
>>	Redirect the standard output (see redirection in "Intermediate Use Of The

Metacharacter	Description
	UNIX Operating System") to append to current contents.
>&	Redirect the standard output and standard error (see redirection in "Intermediate Use Of The UNIX Operating System") to replace current contents.
>>&	Redirect the standard output an standard error (see redirection in "Intermediate Use Of The UNIX Operating System") to append to current contents.
%	Introduces a job name (see multitasking in "Intermediate Use Of The UNIX Operating System").
&	Place a process into the background (see multitasking in "Intermediate Use Of The UNIX Operating System").
()	Encloses a sequence of commands or pipes to be executed as a single command.
!	Precedes a history substitution (see "man history")
;	Separates sequences of commands (or pipes) that are on one line.
&&	Separates two sequences of commands or pipes the second of which is executed only if the first succeeds.
||	Separates two sequences of commands or pipes the second of which is executed only if the first fails.
****	Used to "quote" the following metacharacter so it is treated as a plain character, as in *****.