1. Write a shell program to add two numbers.

Ans:-

Code: -

```
#!/bin/bash
a=12
b=14
sum=$((a + b))
echo "Sum of $a + $b = $sum "
~
~
```

Output: -

```
└─$ bash add_to_number.sh
Sum of 12 + 14 = 26
```

2. Write a shell program to compare two strings using command prompt.

Ans:-

Code: -

```
#!/bin/bash

# Input from user
echo "Enter the first string: "
read first
echo "Enter the second string: "
read second
# comparision

if [ "$first" = "$second" ]; then
        echo "Strings are equal"
else
        echo "Strings are not equal"
fi
```

Output: -

```
└─$ ./compare_strings.sh
Enter the first string:
abc
Enter the second string:
aac
Strings are not equal
```

```
└─$ ./compare_strings.sh
Enter the first string:
abb
Enter the second string:
abb
Strings are equal
```

3. Write a shell program to generate Fibonacci series.

Ans:-

Code: -

```
#!/bin/bash
#code for fabonci series
echo "Enter the number of terms in Fibonacci Series :"
read n
a=0
b=1
echo "Fibonacci Series: "
echo -n "$a "

for (( i=1; i<n; i++ )); do
        echo -n "$b "
        next=$((a + b))
        a=$b
        b=$next
done

echo
```

Output: -

```
└─$ ./fibonacci_series.sh
Enter the number of terms in Fibonacci Series :
7
Fibonacci Series:
0 1 1 2 3 5 8
```

4. Write a shell program to check whether a character is VOWEL or CONSONANT using switch.

Ans: -

Code: -

```
#!/bin/bash

# checking constant or vowel
echo "Enter a character : "
read c
# comparision
if [[ $c == *[AEIOUaeiou]* ]]; then
        echo "$c is a vowel."
else
        echo "$c is constant."
fi
```

Output: -

```
└─$ ./contant_vowel.sh
Enter a character :
a
a is a vowel.
```

```
└─$ ./contant_vowel.sh
Enter a character :
b
b is constant.
```

5. Write a shell program to display the total number of words and total number of lines in a file.

Ans: -

Code: -

```
#!/bin/bash

# code to count number of word count in a file and number of lines in a file
echo "Enter the source / path of the file ( with file name ) :"
read the_path

echo "Total Number of Word Count in $the_path is : "
wc -w $the_path

echo "Total Number of Lines in $the_path is : "
wc -l $the_path
```

Output: -

```
└─$ ./word_count_NOL.sh
Enter the source / path of the file ( with file name ) :
compare_strings.sh
Total Number of Word Count in compare_strings.sh is :
41 compare_strings.sh
Total Number of Lines in compare_strings.sh is :
14 compare_strings.sh
```

6. A script that takes a filename as input and displays information about the file, such as its size, permissions, owner, and modification time.

Ans: -

Code: -

```
#!/bin/bash
# script to display details of a file
echo "Enter the file name with its location : "
read t_path
echo
echo "Size of file $t_path is : "
stat -c "%s" $t_path
echo
echo "Permission of the file $t_path is : "
stat -c "%A" $t_path
echo
echo "Last Modification time of file $t_path is : "
stat -c "%y" $t_path
echo
echo "Owner of the file $t_path is : "
stat -c "%U" $t_path
```

Output: -

```
└─$ ./fil_details.sh
Enter the file name with its location :
add_to_number.sh

Size of file add_to_number.sh is :
68

Permission of the file add_to_number.sh is :
-rwxr--r--

Last Modification time of file add_to_number.sh is :
2023-08-23 22:02:46.841440546 +0530

Owner of the file add_to_number.sh is :
ratn
```

7. Create a script that displays information about the system, such as the OS version, CPU, memory, disk usage, and network details.

Ans: -

Code: -

```
#!/bin/bash
# Displaying OS, CPU Memory Information, disk usage, network details
echo "------------------------------------------Operating System :------------------------------------------"
uname -o --version
echo

echo "------------------------------------------CPU Information;------------------------------------------"
lscpu
echo

echo "------------------------------------------Memoory Usage------------------------------------------"
free -h
echo

echo "------------------------------------------Disk Usage :------------------------------------------"
df -h
echo

echo "------------------------------------------Network Details :------------------------------------------"
ifconfig -a
echo
```

Output: -

```
------------------------------------------Operating System :------------------------------------------
uname (GNU coreutils) 9.1
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License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by David MacKenzie.

------------------------------------------CPU Information;------------------------------------------
Architecture:            x86_64
  CPU op-mode(s):        32-bit, 64-bit
  Address sizes:         45 bits physical, 48 bits virtual
  Byte Order:            Little Endian
CPU(s):                  8
  On-line CPU(s) list:   0-7
Vendor ID:               GenuineIntel
  Model name:            11th Gen Intel(R) Core(TM) i7-11800H @ 2.30GHz
    CPU family:          6
    Model:               141
    Thread(s) per core:  1
    Core(s) per socket:  4
    Socket(s):           2
    Stepping:            1
    BogoMIPS:            4607.99
    Flags:               fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ss ht syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon rep_good nopl xtopology tsc_reliable nonstop_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand hypervisor lahf_lm abm 3dnowprefetch invpcid_single pti ssbd ibrs ibpb stibp fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves arat avx512vbmi umip avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdpid movdiri movdir64b fsrm avx512_vp2intersect flush_l1d arch_capabilities
Virtualization features:
  Hypervisor vendor:     VMware
  Virtualization type:   full
Caches (sum of all):
  L1d:                   384 KiB (8 instances)
  L1i:                   256 KiB (8 instances)
  L2:                    10 MiB (8 instances)
  L3:                    48 MiB (2 instances)
NUMA:
  NUMA node(s):          1
  NUMA node0 CPU(s):     0-7
Vulnerabilities:
  Itlb multihit:         Not affected
  L1tf:                  Mitigation; PTE Inversion
  Mds:                   Vulnerable: Clear CPU buffers attempted, no microcode; SMT Host state unknown
  Meltdown:              Mitigation; PTI
  Mmio stale data:       Not affected
  Retbleed:              Mitigation; IBRS
```

Thank You!