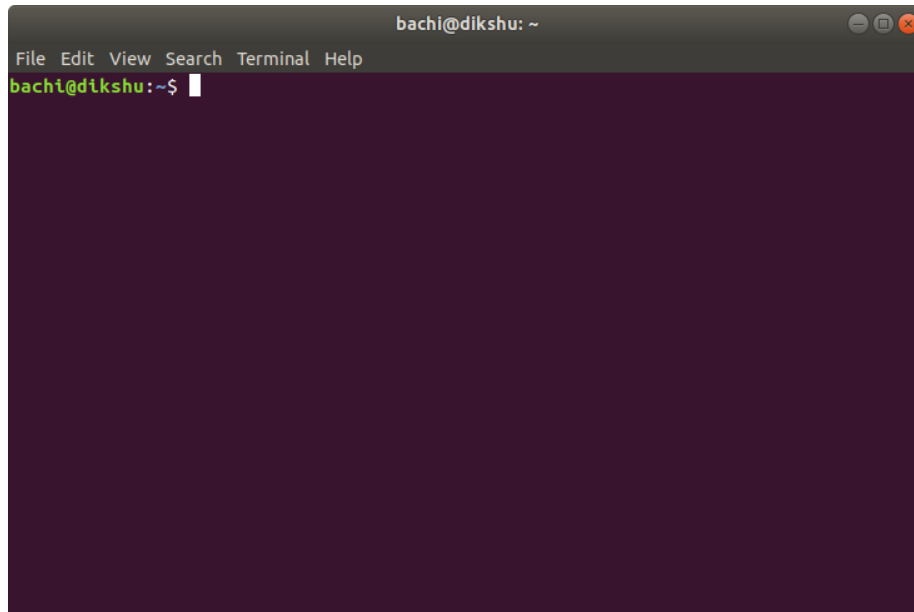NAME:DIKSHITHA VANI V
ROLL NO: 205001032
ASSIGNMENT - 5 Grep Commands

Exercise 1

1. Launch a terminal.

2. Use a command to create a file containing the following data. Call it a6-e1-f1.
Use tabs to separate the fields Do not type the headings.
ID Name Hours Hourly Pay
1425 Juan 18 14.25
4321 George22 21.11
6781 Anna 44 16.77
1451 Ben 36 21.77
2277 Tuan 16 18.77

bachi@dikshu:~/GREP$ cat>a6-e1-f1

1425	Juan	18	14.25
4321	George	22	21.11
6781	Anna	44	16.77
1451	Ben	36	21.77
2277	Tuan	16	18.77

Description : The cat command with the redirection operator is used to copy the contents from standard input into the given file.

3. Use a one-line command to display the hourly pay of Anna (only the last field)

bachi@dikshu:~/GREP$ grep "Anna" a6-e1-f1| cut -f4
16.77

Description: The line with the name "Anna" is selected using grep command and cut is used to select the specified field. The pipe operation is used to combine the two results.

4. Use a one—line command to find the name of the employee with ID 1451.

bachi@dikshu:~/GREP$ grep "1451" a6-e1-f1|cut -f2
Ben

Description: The line with the ID "1451" is selected using grep command and cut is used to select the specified field. The pipe operation is used to combine the two results.

5. Use a one-line command to find the names of employees who worked more than 20 hours. Hint: You may first want to extract the second and third fields before applying one of the grep commands

bachi@dikshu:~/GREP$ cut -f2,3 a6-e1-f1 | grep "[2-9][1-9]\+"|cut -f1
George
Anna
Ben

Description: Name and Hours field from the given table is cut using the cut command .we use the above regular expression ("[2-9][1-9]\+")to find employees who worked more than 20 hours and use cut command again to only extract the name field.

6. Use a one-line command to find the id and hours worked for employees who earn more than $20 per hour

bachi@dikshu:~/GREP$ cut -f1,3,4 a6-e1-f1|grep "[2-9][1-9]\+\.[0-9]\+"|cut -f1,2

4321   22
1451   36

Description: The cut and grep command is used to select specified field and select specified line respectively. The results are combined using pipe operator.

7. Use a one-line command to find the id, name, and hourly pay fer employees who worked fewer than 10 hours

bachi@dikshu:~/GREP$ grep -v "[1-9]\+   [A-Za-z]\+   [1-9][0-9]\+" a6-e1-f1|cut -f1,2,4
 No output

Description: The -v option is used to find the inverse of a given regular expression in grep command. The regular expression specifies the hours worked to be a 2 digit number and by doing the inverse , we are searching for the lines which have the hours field less than 10. **Since the given table does not contain any entry less than 10, there is no output.**

Exercise 2
1. Launch a terminal.
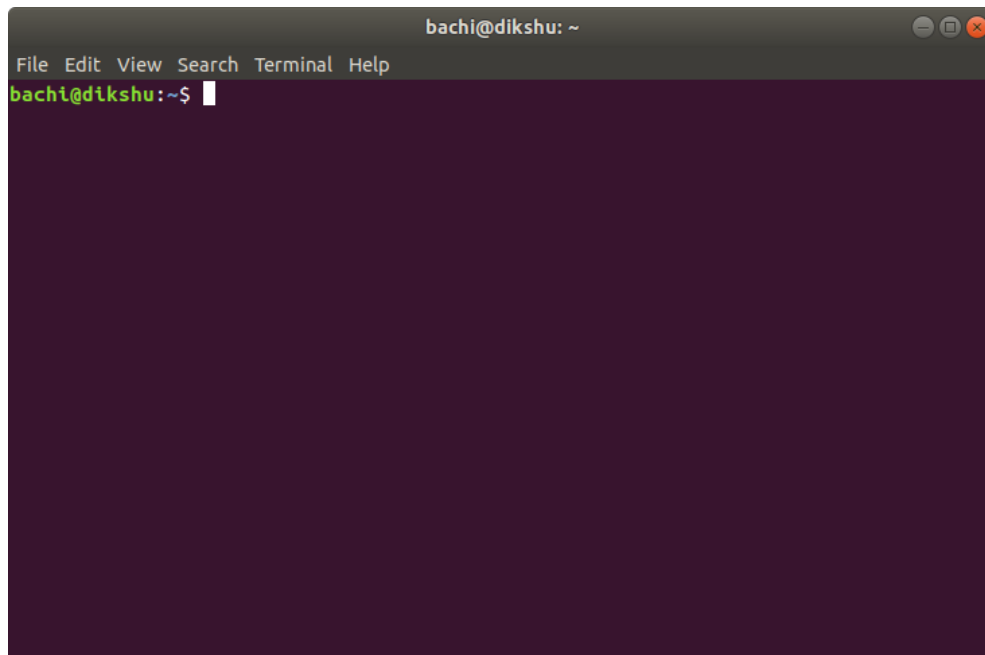
2. Create the following file. Call it a6-e2-f1.

       Psalm of Life
Tell me not, in mournful numbers,
    Life is but an empty dream!
For the soul is dead that slumbers,
    And things are not what they seem.

Life is real! Life is earnest!
    And the grave is not its goal;
Dust thou art, to dust returnest,
    Was not spoken of the soul.

Not enjoyment, and not sorrow,
    Is our destined end or way;
But to act, that each to-morrow
    Find us farther than to-day.

Art is long, and Time is fleeting,
    And our hearts, though stout and brave,
Still, like muffled drums, are beating
    Funeral marches to the grave.

In the world's broad field of battle,
    In the bivouac of Life,
Be not like dumb, driven cattle!
    Be a hero in the strife!

Trust no Future, howe'er pleasant!
    Let the dead Past bury its dead!
Act, act in the living Present!
    Heart within, and God o'erhead!

Lives of great men all remind us
    We can make our lives sublime,
And, departing, leave behind us
    Footprints on the sands of time;

Footprints, that perhaps another,
　　Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
　　Seeing, shall take heart again.

Let us, then, be up and doing,
　　With a heart for any fate;
Still achieving, still pursuing,
　　Learn to labor and to wait.

　　Psalm of Life
Tell me not, in mournful numbers,
　　Life is but an empty dream!
For the soul is dead that slumbers,
　　And things are not what they seem.

Life is real! Life is earnest!
　　And the grave is not its goal;
Dust thou art, to dust returnest,
　　Was not spoken of the soul.

Not enjoyment, and not sorrow,
　　Is our destined end or way;
But to act, that each to-morrow
　　Find us farther than to-day.

Art is long, and Time is fleeting,
　　And our hearts, though stout and brave,
Still, like muffled drums, are beating
　　Funeral marches to the grave.

In the world's broad field of battle,
　　In the bivouac of Life,
Be not like dumb, driven cattle!
　　Be a hero in the strife!

Trust no Future, howe'er pleasant!
    Let the dead Past bury its dead!
Act, act in the living Present!
    Heart within, and God o'erhead!

Lives of great men all remind us
    We can make our lives sublime,
And, departing, leave behind us
    Footprints on the sands of time;

Footprints, that perhaps another,
    Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
    Seeing, shall take heart again.

Let us, then, be up and doing,
    With a heart for any fate;
Still achieving, still pursuing,
    Learn to labor and to wait.

Description : The cat command with the redirection operator is used to copy the contents from standard input into the given file.

3. Use a one-line command to copy file a6-e2-f1 without the blank lines (copy with- out non blank lines). Call the new file a6-e2-f2

Description: The regular expression "^$" denotes the end of line -> which means the grep command searches for lines that are empty . By using the -v option , we search for lines that are not empty.

bachi@dikshu:~/GREP$ grep -v "^$" a6-e2-f1>a6-e2-f2
bachi@dikshu:~/GREP$ cat a6-e2-f2
       Psalm of Life
Tell me not, in mournful numbers,
    Life is but an empty dream!

For the soul is dead that slumbers,
    And things are not what they seem.
Life is real! Life is earnest!
    And the grave is not its goal;
Dust thou art, to dust returnest,
    Was not spoken of the soul.
Not enjoyment, and not sorrow,
    Is our destined end or way;
But to act, that each to-morrow
    Find us farther than to-day.
Art is long, and Time is fleeting,
    And our hearts, though stout and brave,
Still, like muffled drums, are beating
    Funeral marches to the grave.
In the world's broad field of battle,
    In the bivouac of Life,
Be not like dumb, driven cattle!
    Be a hero in the strife!
Trust no Future, howe'er pleasant!
    Let the dead Past bury its dead!
Act, act in the living Present!
    Heart within, and God o'erhead!
Lives of great men all remind us
    We can make our lives sublime,
And, departing, leave behind us
    Footprints on the sands of time;
Footprints, that perhaps another,
    Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
    Seeing, shall take heart again.
Let us, then, be up and doing,
    With a heart for any fate;
Still achieving, still pursuing,
    Learn to labor and to wait.

4. Use appropriate commands to create two new files out of a6-e2-f2. The first file,called a6-e2-f3, contains only the lines that are indented. The second file, called a6-e2-f4, contains the lines that are not indented.

Description: The regular expression "^   " denotes the start of line with a tab space -> which means the grep command searches for lines that are indented .
bachi@dikshu:~/GREP$ grep "^   " a6-e2-f2>a6-e2-f3
bachi@dikshu:~/GREP$ cat a6-e2-f3

Psalm of Life
Life is but an empty dream!
And things are not what they seem.
And the grave is not its goal;
Was not spoken of the soul.
Is our destined end or way;
Find us farther than to-day.
And our hearts, though stout and brave,
Funeral marches to the grave.
In the bivouac of Life,
Be a hero in the strife!
Let the dead Past bury its dead!
Heart within, and God o'erhead!
We can make our lives sublime,
Footprints on the sands of time;
Sailing o'er life's solemn main,
Seeing, shall take heart again.
With a heart for any fate;
Learn to labor and to wait.

Description:By using the -v option , we search for lines without indendation.

bachi@dikshu:~/GREP$ grep -v "^   " a6-e2-f2>a6-e2-f4
bachi@dikshu:~/GREP$ cat a6-e2-f4
Tell me not, in mournful numbers,
For the soul is dead that slumbers,
Life is real! Life is earnest!
Dust thou art, to dust returnest,

Not enjoyment, and not sorrow,
But to act, that each to-morrow
Art is long, and Time is fleeting,
Still, like muffled drums, are beating
In the world's broad field of battle,
Be not like dumb, driven cattle!
Trust no Future, howe'er pleasant!
Act, act in the living Present!
Lives of great men all remind us
And, departing, leave behind us
Footprints, that perhaps another,
A forlorn and shipwrecked brother,
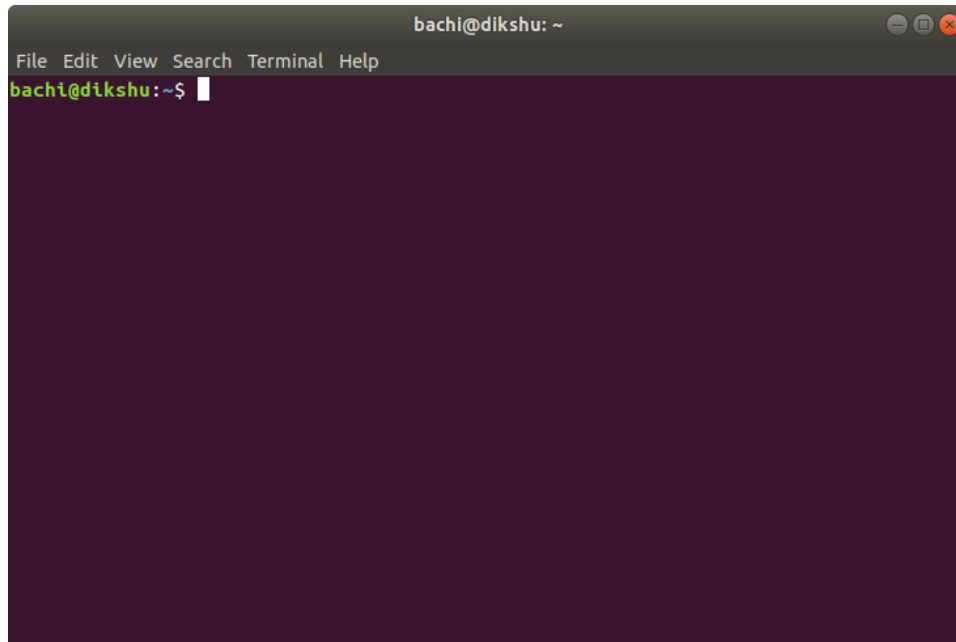**Let us, then, be up and doing,**
Still achieving, still pursuing,

5. Use a one-line command to create a new file out of a6-e3-f3. This file, which is called a6-e2-f5, contains the lines that are centered (equal leading and trailing spaces in each line).

Description: Save operator is used to store the number of spaces that occurred at the start of the line and is checked at the end of the line with the buffer using "\1$"

bachi@dikshu:~/GREP$ grep "\(^ \+\).*\1$" a6-e2-f3
no output

 Exercise 3
1. Log into the system.

```
                              bachi@dikshu: ~                    ⊖ ⊡ ⊗
File  Edit  View  Search  Terminal  Help
bachi@dikshu:~$ █
```

2. Create and save the following file. Do not type the headings. Call it a6-e3-f1

Department Course Session Enrollment
CIS   15   1   45
CIS   54   1   20
BUS   34   2   20
ENG   11   2   89
CIS   45   1   38
MTH   35   1   56
MTH   35   2   41
PE   17   2   25
CIS   54   2   67

Description : The cat command with the redirection operator is used to copy the contents from standard input into the given file.

bachi@dikshu:~/GREP$ cat>a6-e3-f1
CIS   15   1   45
CIS   54   1   20
BUS   34   2   20
ENG   11   2   89

```
CIS   45   1   38
MTH   35   1   56
MTH   35   2   41
PE    17   2   25
CIS   54   2   67
```

3. Use a command to create a file of courses that have only one session. Call the file a6-e3-f2.

Description: Appropriate regular expression is given for the grep command and cut command is used to select specified fields in the given lines.

bachi@dikshu:~/GREP$ grep "[A-Z]\{1,3\} [1-9][0-9]   [1]" a6-e3-f1| cut -f2>a6-e3-f2
bachi@dikshu:~/GREP$ cat a6-e3-f2
15
54
45
35

4. Use a command to create a file 0f courses offered in the CIS department. Call the file a6-e3-f3.

Description: The cut command with a redirection operator is used to copy the data into the given file name instead of the standaard output(terminal)

bachi@dikshu:~/GREP$ grep "CIS" a6-e3-f1|cut -f2>a6-e3-f3
bachi@dikshu:~/GREP$ cat a6-e3-f3
15
54
45
54

5. Use a command to create a file of courses that have fewer than 25 students. Call the file a6-e3-f4.

Description: '|' is alternation command and it is used to check the presence of any one of the given regular expression .

bachi@dikshu:~/GREP$ grep "[A-Z]\{1,3\} [1-9][0-9]   [12]   [1][0-9]\|[2][0-4]" a6-e3-f1| cut -f2>a6-e3-f4
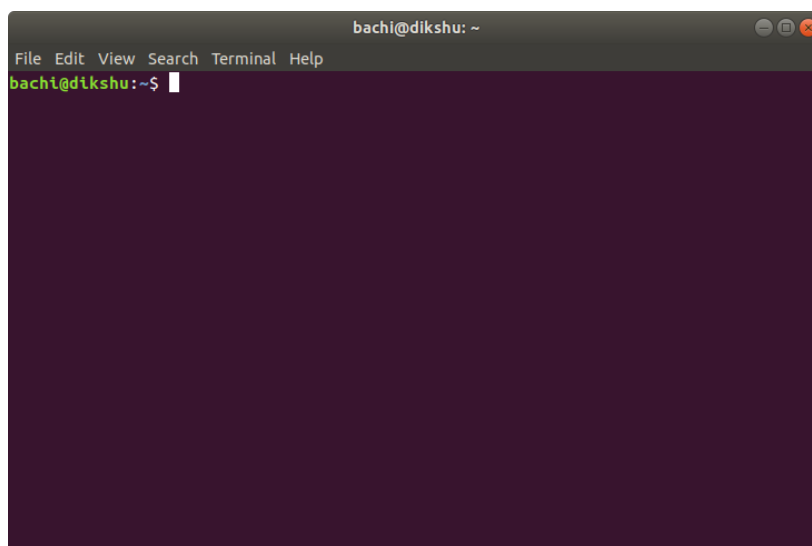bachi@dikshu:~/GREP$ cat a6-e3-f4
54
34

6. Use a command to create a file of Courses that have between 25 and 30 students. Call the file a6-e3-f5.

bachi@dikshu:~/GREP$ grep "[A-Z]\{1,3\} [1-9][0-9]   [12]   [2][6-9]" a6-e3-f1|cut -f2>a6-e3-f5
bachi@dikshu:~/GREP$ cat a6-e3-f5
bachi@dikshu:~/GREP$

EXERCISE -4
1. Log into the system.

2. Create and save the following file. Call it a6-e4-f1.

Great fleas have little fleas
        upon their backs to bite 'em,
        And little fleas have lesser fleas,
and so ad infinitum.
        And the great fleas themselves, in turn,
have greater fleas to go on;
   While these again have greater still,
and greater still, and so on

bachi@dikshu:~/GREP$ cat>a6-e4-f1
Great fleas have little fleas
        upon their backs to bite 'em,
        And little fleas have lesser fleas,
and so ad infinitum.
        And the great fleas themselves, in turn,
have greater fleas to go on;
   While these again have greater still,
and greater still, and so on
Description : The cat command with the redirection operator is used to copy the contents from standard input into the given file.

3. Use appropriate commands to create two files out of this file. The first one, a6-e4-f2, contains lines with no duplicated words. The second one, a6-e4-f3, has triplicate words.

Description: Save operator is used "\(\)" . The option -w is used to make the grep command match for a word in the line instead of entire line. -v option is used to output the inverse of the given command.

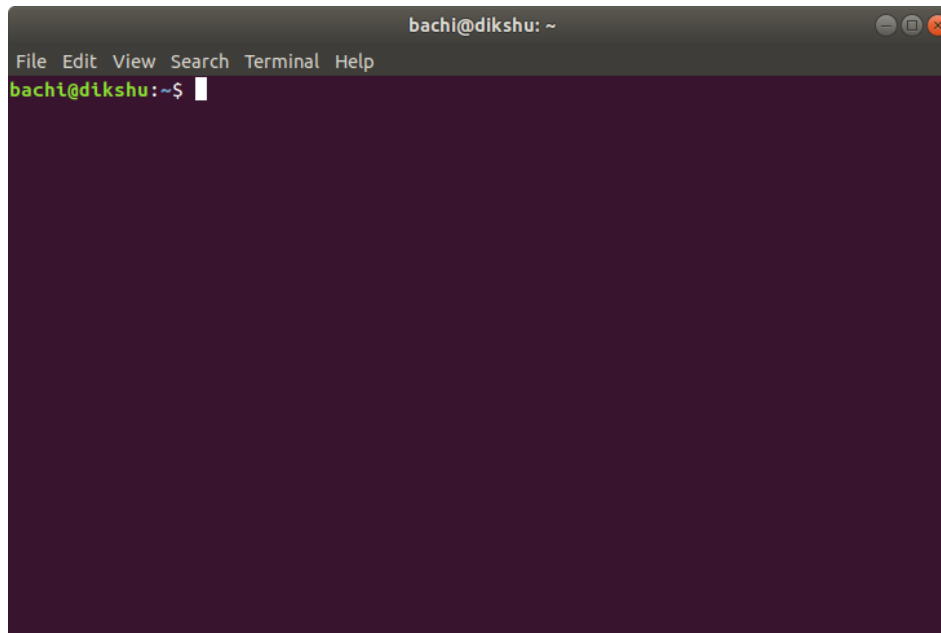bachi@dikshu:~/GREP$ grep -wv "\([A-Za-z]\+\).*\1" a6-e4-f1
        upon their backs to bite 'em,
and so ad infinitum.
have greater fleas to go on;
   While these again have greater still,

bachi@dikshu:~/GREP$ grep -w "\([A-Za-z]\+\).*1.*\1" a6-e4-f1

no output

Exercise 5

1. Launch a terminal.

2. Create and save the following file. Call it a6-e5-f1.

* Section

A section heading starts with *.

** Subsection

A subsection heading starts with **.

We *emphasize* a phrase by delimiting it *.

*** Subsubsection

A subsubsection starts with ***.

It is a great organization, indeed!

bachi@dikshu:~/GREP$ cat>a6-e5-f1

* Section

A section heading starts with *.

** Subsection
A subsection heading starts with **.
We *emphasize* a phrase by delimiting it *.
*** Subsubsection
A subsubsection starts with ***.
It is a great organization, indeed!

3. Write a command that finds the lines that start with one and only one asterisk. The line may contain more asterisks, but it must start with one asterisk followed by a nonasterisk character

Description: The regular expression indicates -> the start of the line with an asterisk and its maximum repetition should be only once which is given by the repetition operator "\\{\\}" and class operator is used to specify that any character other than "* can be repeated any number of times.

bachi@dikshu:~/GREP$ grep "^*\\{1\\}[^*].*" a6-e5-f1
* Section
It is a great organization, indeed!

4. Write a command that finds the lines that contain two asterisks separated by another single character.

bachi@dikshu:~/GREP$ grep "^**[^*]" a6-e5-f1
** Subsection

5. Write a command that finds lines with six or fewer asterisks.

Description: Searches for a single character "*" and saves it in the buffer and checks if the character is repeated at most six times using backreference operator.

bachi@dikshu:~/GREP$ grep "\\(*\\).*\\1\\{0,6\\}" a6-e5-f1
* Section
A section heading starts with *.

** Subsection
A subsection heading starts with **.
We *emphasize* a phrase by delimiting it *.
*** Subsubsection
A subsubsection starts with ***.
It is a great organization, indeed!

6. Write a command that has an equal number of asterisks at the beginning and the end.

Description: Finds the number of asterisks at the start of the line and saves it in the buffer and checks if the number of asterisks at the end is also the same using save and backreference operators.

bachi@dikshu:~/GREP$ grep "^\(*\+\).*\1$" a6-e5-f1
It is a great organization, indeed!