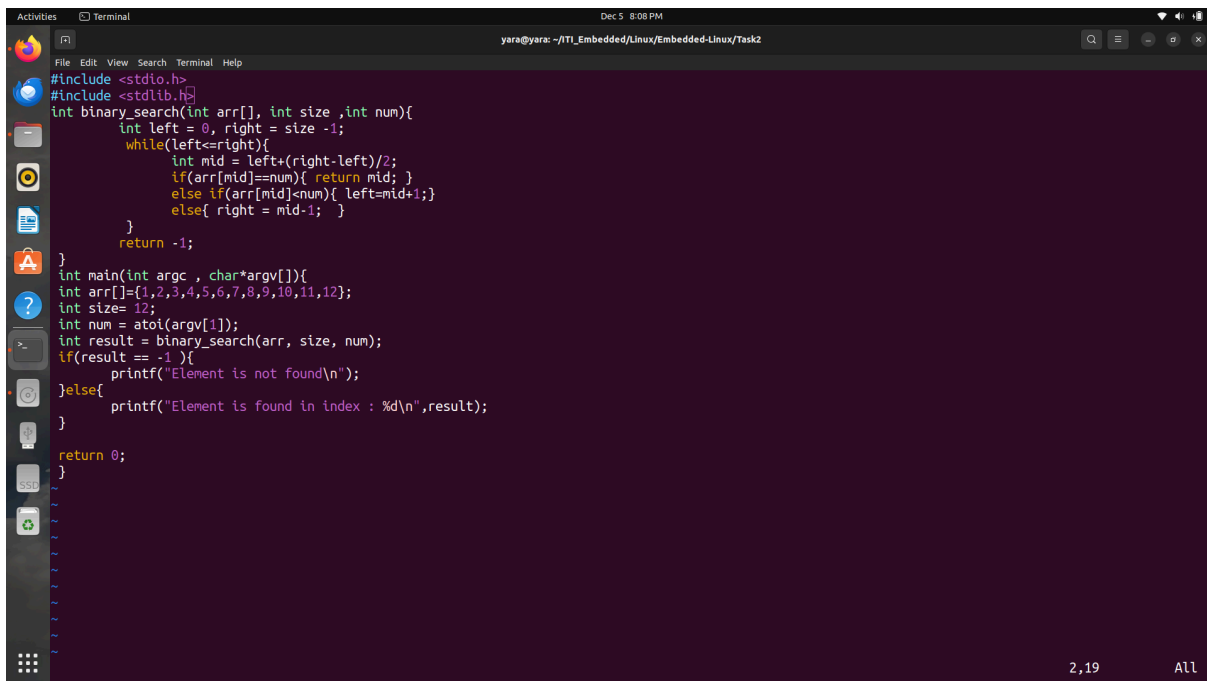
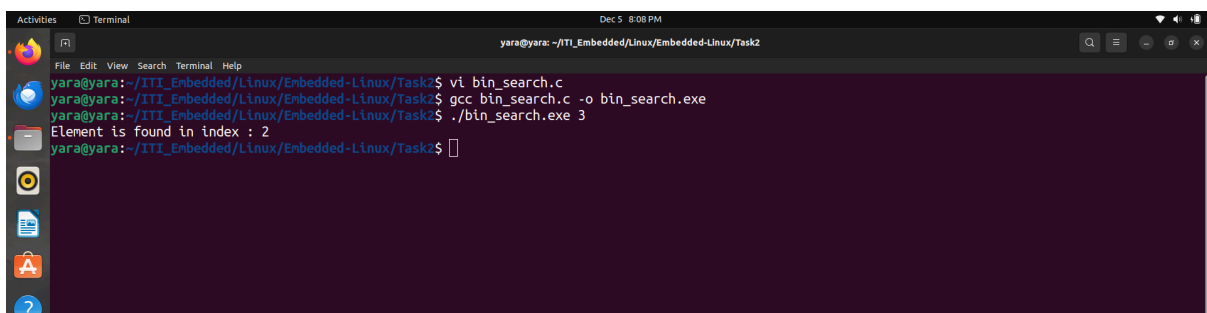


1. Ques1: Using VI editor only



```
File Edit View Search Terminal Help
yara@yara: ~/ITI_Embedded/Linux/Embedded-Linux/Task2

#include <stdio.h>
#include <stdlib.h>
int binary_search(int arr[], int size ,int num){
    int left = 0, right = size -1;
    while(left<=right){
        int mid = left+(right-left)/2;
        if(arr[mid]==num){ return mid; }
        else if(arr[mid]<num){ left=mid+1;}
        else{ right = mid-1; }
    }
    return -1;
}
int main(int argc , char*argv[]){
    int arr[]={1,2,3,4,5,6,7,8,9,10,11,12};
    int size= 12;
    int num = atoi(argv[1]);
    int result = binary_search(arr, size, num);
    if(result == -1 ){
        printf("Element is not found\n");
    }else{
        printf("Element is found in index : %d\n",result);
    }
    return 0;
}
```

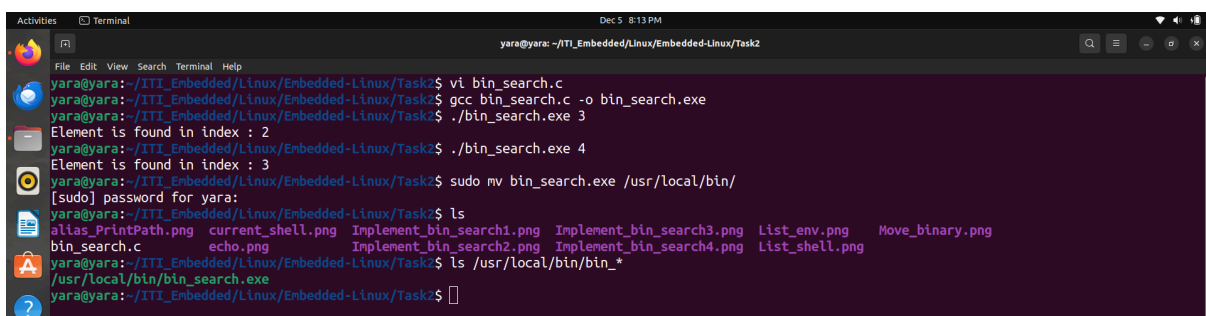


```
File Edit View Search Terminal Help
yara@yara: ~/ITI_Embedded/Linux/Embedded-Linux/Task2

yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ vi bin_search.c
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ gcc bin_search.c -o bin_search.exe
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ ./bin_search.exe 3
Element is found in index : 2
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$
```

2. Question 2

- Because we include the directory “usr/local/bin”to environment variable => “PATH”
- it becomes accessible for execution from any directory because the shell knows to look in `/usr/local/bin` when searching for executable files.



```
File Edit View Search Terminal Help
yara@yara: ~/ITI_Embedded/Linux/Embedded-Linux/Task2

yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ vi bin_search.c
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ gcc bin_search.c -o bin_search.exe
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ ./bin_search.exe 3
Element is found in index : 2
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ ./bin_search.exe 4
Element is found in index : 3
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ sudo mv bin_search.exe /usr/local/bin/
[sudo] password for yara:
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ ls
alias_PrintPath.png  current_shell.png  Implement_bin_search1.png  Implement_bin_search3.png  List_env.png  Move_binary.png
bin_search.c          echo.png            Implement_bin_search2.png  Implement_bin_search4.png  List_shell.png
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$ ls /usr/local/bin/bin_*
/usr/local/bin/bin_search.exe
yara@yara:~/ITI_Embedded/Linux/Embedded-Linux/Task2$
```

```
Activities Terminal Dec 5 8:33 PM yara@yara: ~
File Edit View Search Terminal Help
# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

# Add an "alert" alias for long running commands. Use like so:
# sleep 10; alert
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]} && echo terminal || echo error" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[:&]\s*alert$/'\''")"'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
export PATH=$PATH:/usr/local/bin
".bashrc" 118L, 3804B 118,32 Bot
```

```
Activities Terminal Dec 5 8:33 PM yara@yara: ~
File Edit View Search Terminal Help
yara@yara:~$ vim .bashrc
yara@yara:~$ source ~/.bashrc
yara@yara:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin:/usr/local/bin:/usr/local/bin
yara@yara:~$ bin_search.exe 4
Element is found in index : 3
yara@yara:~$
```

3. Na2na2a:

a. List available shell

```
File Edit View Search Terminal Help
yara@yara:~$ cat /etc/shells
# /etc/shells: valid login shells
/bin/sh
/bin/bash
/usr/bin/bash
/bin/rbash
/usr/bin/rbash
/usr/bin/sh
/bin/dash
/usr/bin/dash
yara@yara:~$
```

b. List the environment variables

```
File Edit View Search Terminal Help
yara@yara:~$ env
SHELL=/bin/bash
SESSION_MANAGER=local/yara:@/tmp/.ICE-unix/2056,unix/yara:/tmp/.ICE-unix/2056
QT_ACCESSIBILITY=1
COLORTERM=truecolor
XDG_CONFIG_DIRS=/etc/xdg/xdg-ubuntu:/etc/xdg
SSH_AGENT_LAUNCHER=gnome-keyring
XDG_MENU_PREFIX=gnome-
GNOME_DESKTOP_SESSION_ID=this-is-deprecated
GTK_IM_MODULE=ibus
LC_ADDRESS=en_CA.UTF-8
GNOME_SHELL_SESSION_MODE=ubuntu
LC_NAME=en_CA.UTF-8
SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
XMODIFIERS=@im=ibus
DESKTOP_SESSION=ubuntu
LC_MONETARY=en_CA.UTF-8
GTK_MODULES=gail:atk-bridge
PWD=/home/yara
LOGNAME=yara
```

c. Display your current shell

```
File Edit View Search Terminal Help
yara@yara:~$ echo $SHELL
/bin/bash
yara@yara:~$
```

d. execute echo \

what is the purpose ? It allows you to break up long commands into multiple lines, making it easier to read and write complex commands.

```
File Edit View Search Terminal Help
yara@yara:~$ echo \
> hello \
> world
hello world
yara@yara:~$
```

e. create PrintPath

```
File Edit View Search Terminal Help
yara@yara:~$ alias PrintPath="echo $PATH"
yara@yara:~$ PrintPath
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin:/usr/local/bin:/usr/local/bin:/usr/local/bin:/usr/local/bin
yara@yara:~$
```