Activity 4

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1.

```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/wait.h>

int main(int argc, char *argv[])
{
    pid_t pid;

    if (argc < 2) {
        printf("Please enter UNIX command\n");
        return(0);
    }

    pid = fork() ;
    if (pid < 0) {
        printf("Error: cannot fork\n");
        exit(1);
    }
    else if (pid == 0) {
        execvp(argv[1],&argv[1]);
    }
    else {
        wait(NULL);
        return(0);
    }
}
```

ผลลัพธ์

```
miuleto@DESKTOP-4M7DPRK:~$ sol1
Please enter UNIX command
miuleto@DESKTOP-4M7DPRK:~$ sol1 date
Fri Jan 31 14:29:43 +07 2025
miuleto@DESKTOP-4M7DPRK:~$ sol1 head -1 /etc/passwd
root:x:0:0:root:/root:/bin/bash
miuleto@DESKTOP-4M7DPRK:~$ sol1 cal 12 2021
   December 2021
Su Mo Tu We Th Fr Sa
          1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31

miuleto@DESKTOP-4M7DPRK:~$
```

2.

```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>

int main()
{
    char delim[] = " \t\n";
    char **tokens;
    char input[256];
    int numtokens;
    int run = 1;

    while(run) {
        printf("mysh >");
        fgets(input, 256, stdin);

        numtokens = tokenize(input, delim, &tokens);
        if (numtokens <= 0) {
            continue;
        }

        if (strcmp(tokens[0], "exit") == 0) {
            free(tokens);
            break;
        }
        pid_t pid = fork();
        if (pid < 0) {
            printf("Fork failed\n");
            free(tokens);
            continue;
        } else if (pid == 0) {
            execvp(tokens[0], tokens);
        } else {
            wait(NULL);
        }
        free(tokens);
    }
    return 0;
}
```

```c
int tokenize(char *string, char *delimiters, char ***arrayOfTokens)
{

    char *token;
    int numtokens;
    int i;

    /* skip the beginning delimiters */
    string += strspn(string, delimiters);
    if ((token = malloc(strlen(string) + 1)) == NULL)
        return -1;

    /* count tokens */
    strcpy(token, string);
    numtokens = 0;
    if (strtok(token, delimiters) != NULL)
        for (numtokens = 1; strtok(NULL, delimiters) != NULL;
    numtokens++);

    /* create array of pointers to tokens */
    if ((*arrayOfTokens = malloc((numtokens+1)*sizeof(char *))) == NULL) {
        free(token);
        return -1;
    }

    /* fill pointers to tokens into the array */
    if (numtokens == 0)
        free(token);
    else {
        strcpy(token, string);
        (*arrayOfTokens)[0] = strtok(token, delimiters);
        for (i = 1; i < numtokens; i++)
            (*arrayOfTokens)[i] = strtok(NULL, delimiters);
        (*arrayOfTokens) [numtokens] = NULL;
    }

    return numtokens;
}
```

ผลลัพธ์

```
miuleto@DESKTOP-4M7DPRK:~$ sol2
mysh >date
Fri Jan 31 15:04:13 +07 2025
mysh >cal 12 2021
   December 2021
Su Mo Tu We Th Fr Sa
            1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31

mysh >exit
miuleto@DESKTOP-4M7DPRK:~$
```