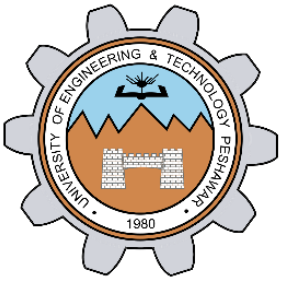
LAB NO 02

LAYOUT OF PROGRAM, LIBRARY FUNCTION CALLS & ERROR HANDLING



Fall 2024

CSE-302L Systems Programming Lab

Submitted by:

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Section**: A**

Submitted to:

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January 8, 2025

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Lab Report 2:

Layout of program, library function calls and error handling

Task 1

Write two C programs for the analysis of the difference inexecutable file sizes while using:

1. Uninitialized Static Variables
2. Initialized Static Variables

Use Is -1 to compare the sizes of the executable modules for the above two C programs.

Code:

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

int main (){
   static int arr[1000];
}
```

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

int main (){
 static int arr[1000] = {1,2,3};
}
```

Output:

```
hassan@hassan-HP-ProBook-4740s:~/Desktop/SP Lab/SP Lab 02$ ls -l task1.o task2.o
-rwxrwxrwx 1 hassan hassan 15856 Dec 29 09:38 task1.o
-rw-r--r-- 1 hassan hassan 19872 Dec 29 09:38 task2.o
```

Task 2

Analyze the return values and error numbers/error stings of wait system call on: Success and Failure Using Strerror and Perror

Code:

```c
#include <stdlib.h>
#include <stdio.h>
#include <errno.h>
#include <errno.h>
#include <string.h>
#include <fcntl.h>
#include <sys/wait.h>
#include <unistd.h>
int main (){
  pid_t pid= fork();
if(pid == -1){
perror ("Fork Failed\n");
}
else  if(pid==0){
  wait(NULL);
  perror("Failed to wait\n");
  printf("Error %s\n",strerror(errno));
}
  else{
  wait(NULL);
  perror("Failed to wait\n");
  printf("Error %s\n", strerror(errno));
}
}
```

Output:

```
hassan@hassan-HP-ProBook-4740s:~/Desktop/SP Lab/SP Lab 02$ gcc task3.c -o task3.
o
hassan@hassan-HP-ProBook-4740s:~/Desktop/SP Lab/SP Lab 02$ ./task3.o
Failed to wait
: No child processes
Error No child processes
Failed to wait
: Success
Error Success
```

Task 3

Analyze the return values and error numbers/error stings of close system call on Success and Failure using Strerror and Perror.

Code:

```c
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <string.h>
#include <errno.h>
#include <unistd.h>
int main() {
    int x = close(0);
  if (x == -1) {
        perror("Failed to close file");
        printf("Error: %s\n", strerror(errno));
    } else {
        printf("File closed successfully\n");
    }int y = close(5);
  if (y == -1) {
        perror("Failed to close file");
        printf("Error: %s\n", strerror(errno));
    } else {
    printf("File closed successfully\n");
    }

    return 0;
}
```

Output:

```
hassan@hassan-HP-ProBook-4740s:~/Desktop/SP Lab/SP Lab 02$ gcc task3.c -o task3.
o
hassan@hassan-HP-ProBook-4740s:~/Desktop/SP Lab/SP Lab 02$ ./task3.o
Failed to wait
: No child processes
Error No child processes
Failed to wait
: Success
Error Success
```

CSE 302L: SYSTEMS PROGRAMMING LAB

LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO08	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of writing Program/ Algorithm/Drawing Flow Chart PLO1, PLO2, PLO3, PLO5,	Right attempt/ no errors and well formatted	Right attempt/ no errors but not well formatted	Right attempt/ minor errors and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the outputs are correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab and procedure followed	Has poor idea about the Lab and procedure followed	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____