OPERATING SYSTEMS LAB-5 WEEK-6

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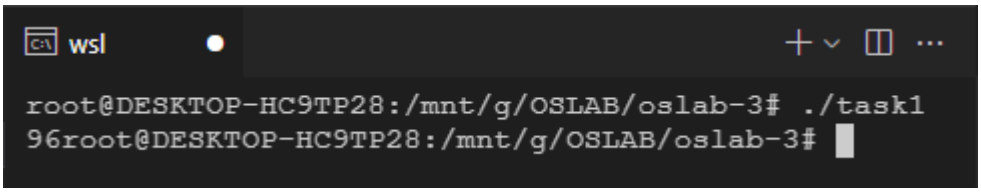
1. TASK 1: **Dynamic sizing of array and finding the highest element in the array**

--nano task1.c

```
#include<stdio.h>
void main(){
int arr[]={2,5,79,96};
int highest=arr[0];
int size=sizeof(arr)/sizeof(arr[0]);
for(int i=0;i<size;i++){
if(highest<arr[i]){
highest=arr[i];
}
}
printf("%d",highest);
}
```

-- CTRL+X [save quit to terminal and save file in nano]
-- gcc task1.c -o task1 [Compile C file with Output executable using this command]
-- ./task1 [Execute the file using this command]



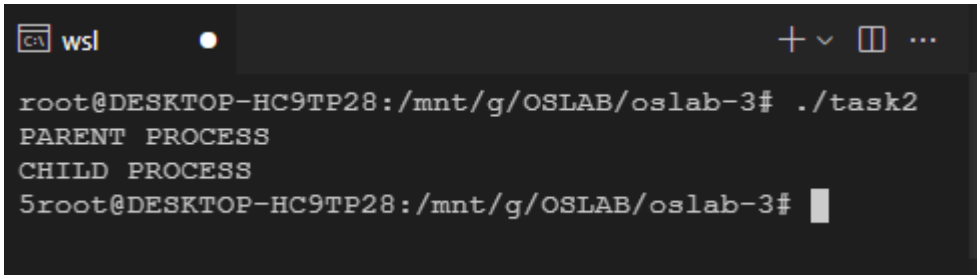
2. TASK 2: **Using pipe to transfer a single variable from child to parent process**

--nano task2.c

```
#include<stdio.h>
#include<unistd.h>

void main(){
int id;
int fd[2];
pipe(fd);
id=fork();
if(id==0){
int value=5;
printf("CHILD PROCESS\n");
close(fd[0]);
write(fd[1],&value,sizeof(value));
close(fd[1]);
}
else{
int valuefromChild=0;
printf("PARENT PROCESS\n");
read(fd[0],&valuefromChild,sizeof(valuefromChild));
printf("%d",valuefromChild);
}
}
```

-- CTRL+X [save quit to terminal and save file in nano]
-- gcc task2.c -o task2 [Compile C file with Output executable using this command]
-- ./task2 [Execute the file using this command]



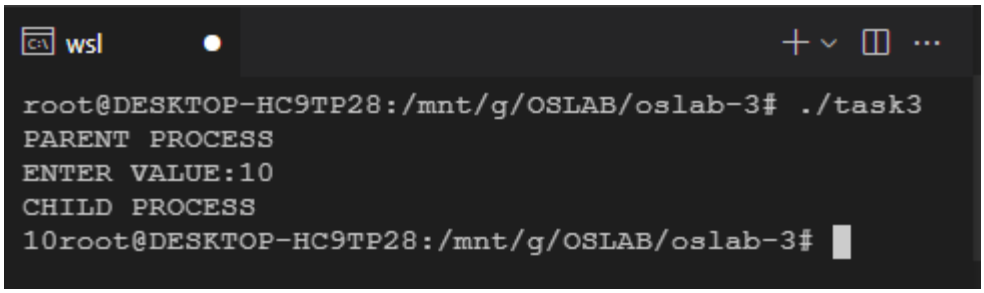
3. TASK 3: **Enter value from child and pass it through the pipe**

--nano task3.c

```
#include<stdio.h>
#include<unistd.h>

void main(){
int id;
int fd[2];
pipe(fd);
id=fork();
if(id==0){
int value;
printf("ENTER VALUE:");scanf("%d",&value);
printf("CHILD PROCESS\n");
close(fd[0]);
write(fd[1],&value,sizeof(value));
close(fd[1]);
}
else{
int valuefromChild=0;
printf("PARENT PROCESS\n");
read(fd[0],&valuefromChild,sizeof(valuefromChild));
printf("%d",valuefromChild);
}
}
```

-- CTRL+X [save quit to terminal and save file in nano]
-- gcc task3.c -o task3 [Compile C file with Output executable using this command]
-- ./task3 [Execute the file using this command]

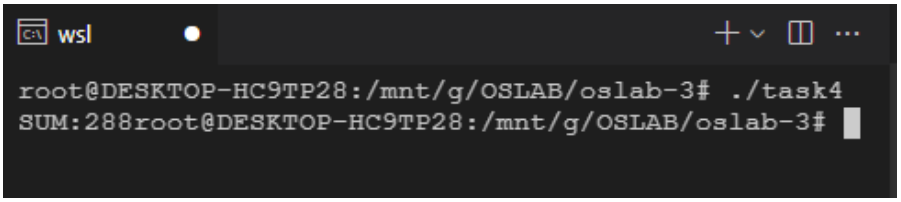


4. TASK 4: **Dividing an array and calculating the sum in different processes and merging the sum using fork and pipe**

--nano task4.c

```
#include <stdio.h>
#include <unistd.h>

void main(){
int id;
int fd[2];
int arr[]={2,5,7,80,90,104};
pipe(fd);
int len=sizeof(arr)/sizeof(arr[0]);
int half=len/2;
id=fork();
if(id==0){
int sum=0;
for(int i=0;i<=half-1;i++){
sum=sum+arr[i];
}
close(fd[0]);
write(fd[1],&sum,sizeof(sum));
close(fd[1]);
}
else{
int valuefromChild=0;
read(fd[0],&valuefromChild,sizeof(valuefromChild));
int sum=valuefromChild;
for(int i=half;i<=len-1;i++){
sum=sum+arr[i];
}
printf("SUM:%d",sum);
}
}
```



-- CTRL+X [save quit to terminal and save file in nano]
-- gcc task4.c -o task4 [Compile C file with Output executable using this command]
-- ./task4 [Execute the file using this command]