

# OPERATING SYSTEM LAB TASK – 03

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## QUESTION – 1

### Lab-3 Exercises:

What is the output of following programs?

1)

```
#include <stdio.h>
void fun(int x)
{
    x = 30;
}
main()
{
    int y = 20;
    fun(y);
    printf("%d", y);
}
```

Output:

OUTPUT (if code is wrong):

The screenshot shows a C compiler interface with the following code in the editor:

```
1  #include <stdio.h>
2
3  void fun(int x)
4  {
5      x = 30;
6  }
7  main()
8  {
9      int y = 20;
10     fun(y);
11     printf("%d", y);
12 }
```

The compiler output window shows the following messages:

Line	Col	File	Message
		C:\Users\ucum\Documents\main.c	In function 'voidfun':
5	2	C:\Users\ucum\Documents\main.c	[Error] 'x' undeclared (first use in this function)
5	2	C:\Users\ucum\Documents\main.c	[Note] each undeclared identifier is reported only once for each function it appears in
		C:\Users\ucum\Documents\main.c	In function 'main':
9	2	C:\Users\ucum\Documents\main.c	[Error] 'inty' undeclared (first use in this function)
10	6	C:\Users\ucum\Documents\main.c	[Error] 'y' undeclared (first use in this function)
28		C:\Users\ucum\Documents\Makefile.win	recipe for target 'main.o' failed

OUTPUT (if code is corrected):

```
1  #include <stdio.h>
2
3  void fun(int x)
4  {
5      x = 30;
6  }
7  main()
8  {
9      int y=20;
10     fun(y);
11     printf("%d",y);
12 }
```

C:\Users\ucom\Documents\Project1.exe

20

-----

Process exited after 0.05236 seconds  
Press any key to continue . . .

## QUESTION – 2

```
1  #include <stdio.h>
2  void fun(int*ptr)
3  {
4      *ptr = 30;
5  }
6
7  int main()
8  {
9      int y = 20;
10     fun(&y);
11     printf("%d", y);
12 }
```

Output:

OUTPUT (if code is wrong):

Project1

```
1  #include <stdio.h>
2
3  void fun(int*ptr)
4  {
5      *ptr = 30;
6  }
7  int main()
8  {
9      inty=20;
10     fun(&y);
11     printf("%d",y);
12 }
```

Compiler (5) Resources Compile Log Debug Find Results Close

Line	Col	File	Message
		C:\Users\ucom\Documents\main.c	<b>In function 'intmain':</b>
9	2	C:\Users\ucom\Documents\main.c	[Error] 'inty' undeclared (first use in this function)
9	2	C:\Users\ucom\Documents\main.c	[Note] each undeclared identifier is reported only once for each function it appears in
10	7	C:\Users\ucom\Documents\main.c	[Error] 'y' undeclared (first use in this function)
28		C:\Users\ucom\Documents\Makefile.win	recipe for target 'main.o' failed

OUTPUT (if code is corrected):

```
1  #include <stdio.h>
2  void fun(int *ptr)
3  {
4      *ptr = 30;
5  }
6  int main()
7  {
8      int y=20;
9      fun(&y);
10     printf("%d",y);
11 }
```

C:\Users\ucom\D  
30  
-----  
Process exited  
Press any key t

### QUESTION – 3

```
3)
int main()
{
    int *ptr;
    int x;

    ptr = &x;
    *ptr = 0;

    printf(" x = %d", x);
    printf(" *ptr = %d", *ptr);

    *ptr += 5;
    printf(" x = %d", x);
    printf(" *ptr = %d", *ptr);

    (*ptr)++;

    printf(" x = %dn", x);
    printf(" *ptr = %d", *ptr);
}
```

Output:

## OUTPUT:

```
1  #include <stdio.h>
2  int main()
3  {
4      int *ptr;
5      int x;
6      ptr = &x;
7      *ptr = 0;
8      printf(" x=%d",x);
9      printf(" *ptr=%d",*ptr);
10     *ptr += 5;
11     printf(" x=%d",x);
12     printf(" *ptr=%d",*ptr);
13     (*ptr)++;
14     printf(" x=%dn",x);
15     printf(" *ptr=%d",*ptr);
16 }
```

C:\Users\ucom\Documents\Project1.exe

x=0 \*ptr=0 x=5 \*ptr=5 x=6n \*ptr=6

-----

Process exited after 0.03585 seconds with return value 7

Press any key to continue . . .

## QUESTION – 4:

- 4) Write a program that allocate memory for array and print the array elements along with sum of all elements. Also reallocate memory size again print array element

## CODE:

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int *ptr, arr, i, sum = 0;
    printf("Allocate memory of array: ");
    scanf("%d",&arr);
    ptr=(int*)malloc(arr*sizeof(int));
    printf("Enter elements: ");
    for(i=0;i<arr;i++)
    {
        scanf("%d",(ptr+i));
    }
    printf("\nAll elements of array: \n");
    for(i=0;i<arr;i++)
    {
        printf("%d\n",*(ptr+i));
    }
    for(i=0;i<arr;i++)
    {
        sum+=*(ptr+i);
    }
}
```

```

    }
    printf("\nSum of all elements is: %d\n",sum);
    free(ptr);
    printf("\nReallocate memory of array: ");
    scanf("%d",&arr);
    ptr=(int*)malloc(arr*sizeof(int));
    printf("Enter elements: ");
    for(i=0;i<arr;i++)
    {
        scanf("%d",(ptr+i));
    }
    printf("\nAll elements of array: \n");
    for(i=0;i<arr;i++)
    {
        printf("%d\n",*(ptr+i));
    }
    return 0;
}

```

## OUTPUT:

The screenshot displays a C program in a code editor on the left and its execution output in a terminal window on the right. The program is designed to dynamically allocate memory for an array, calculate the sum of its elements, free the memory, and then reallocate it for a new size. It repeats this process twice.

**Code Editor (Left):** The code is a C program with line numbers 1 to 39. It includes `<stdio.h>` and `<stdlib.h>`. The `main` function starts by allocating memory for an array of size 5, entering elements 1, 2, 6, 7, and 9, calculating their sum (25), and then freeing the memory. It then prompts for a new array size (3), enters elements 3, 5, and 8, and prints them. The program ends with `return 0;`.

**Terminal Window (Right):** The window title is `C:\Users\ucom\Documents\Project1.exe`. The output shows the program's execution flow:
 

- Allocate memory of array: 5
- Enter elements: 1 2 6 7 9
- All elements of array: 1, 2, 6, 7, 9
- Sum of all elements is: 25
- Reallocate memory of array: 3
- Enter elements: 3 5 8
- All elements of array: 3, 5, 8
- Process exited after 18.29 seconds with return value
- Press any key to continue . . .