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LEAF EXAMPLE

Prepared For :

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Description of the Problem:

Problem Statement:
Write a MIPS assembly language program that prompts the user to enter four integer values. After receiving the inputs, the program should pass these values to a subroutine named leaf_example. The leaf_example subroutine should perform arithmetic operations on the inputs and display the result.

SAMPLE INPUT:

```
ENTER THE VALUE: 10
ENTER THE VALUE: 5
ENTER THE VALUE: 3
ENTER THE VALUE: 7
```

SAMPLE OUTPUT:

```
THE OUTPUT IS: 5
```

Updates Added to Make the Example Work:

1-Initialization:

The program initializes the message strings for input and output using .asciiz.
The .data section is added to define these strings.
The .text section is added to start the code segment.

2-Prompting for Input:

The program uses syscall 4 to prompt the user to enter a value.
It uses syscall 5 to read an integer input from the user and stores it in registers $t0, $t1, $t2, and $t3.
Passing Values to leaf_example:

The program moves the input values into arguments $a0, $a1, $a2, and $a3, which are used to pass arguments to a function.
The jal instruction is used to jump and link to the leaf_example subroutine.:

3-Passing Values to leaf_example:

The program moves the input values into arguments $a0, $a1, $a2, and $a3, which are used to pass arguments to a function.
The jal instruction is used to jump and link to the leaf_example subroutine.

4-leaf_example Subroutine:

The leaf_example subroutine performs arithmetic operations on the input values.
It adds the first two inputs ($a0 and $a1) and stores the result in $t0.
It adds the next two inputs ($a2 and $a3) and stores the result in $t1.
It subtracts the result of the second operation from the first ($t0 - $t1) and stores the result in $s0.
Displaying Output:

The program uses syscall 1 to display the output result stored in $s0.
Cleaning Up and Exiting:

The program restores the stack pointer and return address before exiting the leaf_example subroutine.
It exits the program using syscall 10.

this our screen shot for input and output and there is a register in picture $t0 ,$t1,$t2,$t3 then this moved to $a0,$a1,$a2,and $a3 then print the value