

1) Write a program that displays the sum of two numbers. Apply the Software Development Method?

1- Problem

Calculate the sum of two numbers

2- Analysis

Problem Input

num1, num2

Problem Output

sum

(sum = num1 + num2)

3- Design / Algorithm

1. Get number 1
2. Get number 2
3. Calculate the sum
4. Display the sum of two numbers

4. Implementation

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

```
int main(void)  
{  
    int num1, num2; /* input: the two numbers */  
    int sum;
```

```
    /* get the two numbers from the user */  
    printf("Enter Number 1 > ");  
    scanf("%d", &num1);  
    printf("Enter Number 2 > ");  
    scanf("%d", &num2);  
  
    sum = num1+ num2;  
    printf("The sum of two numbers is %d \n",sum);  
  
    return (0);  
}
```

Memory: main()

num1 (int)	num2 (int)	sum (int)
7	10	17

printf("%d + %d = %d\n",num1,num2,num1+num2);

sum = num1+ num2;
printf("%d + %d = %d\n",num1,num2,sum);

5. Testing

6. Maintenance

2) Function with 1 Argument

Write a function that displays the sum of two numbers?

Note:- we need to declare the function if we write it after the main function

```
#include<stdio.h>

void display(int sum)
{
    printf("The sum of two numbers is %d\n",sum);
}

int main(void)
{
    int num1, num2; /* input: the two numbers */
    int sum;

    /* get the two numbers from the user */
    printf("Enter Number 1 > ");
    scanf("%d",&num1);
    printf("Enter Number 2 > ");
    scanf("%d",&num2);

    sum = num1+ num2;

    /* call the function that print the value of sum */
    display(sum);

    return (0);
}
```

```
#include<stdio.h>

void display(int sum); /* function declaration */

int main(void)
{
    int num1, num2; /* input: the two numbers */
    int sum;

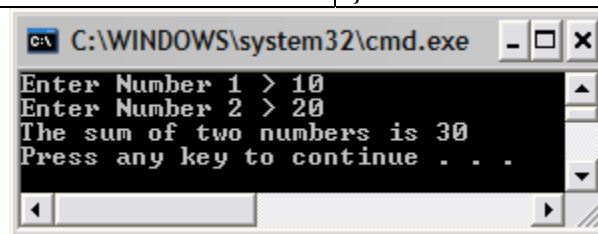
    /* get the two numbers from the user */
    printf("Enter Number 1 > ");
    scanf("%d", &num1);
    printf("Enter Number 2 > ");
    scanf("%d", &num2);

    sum = num1+ num2;

    /* call the function that print the value of sum */
    display(sum);

    return (0);
}

void display(int sum)
{
    printf("The sum of two numbers is %d \n ",sum);
}
```



```
C:\WINDOWS\system32\cmd.exe
Enter Number 1 > 10
Enter Number 2 > 20
The sum of two numbers is 30
Press any key to continue . . .
```

Memory: main()

num1 (int)	num2 (int)	sum (int)
10	20	30

Memory: display()

sum (int)
30

3) Function with Argument & Return Value

Write a function that calculates the sum of two numbers?

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

```
int fun_sum(int num1, int num2)
{
    int sum;
    return(num1+num2);
}
sum = num1 + num2;
return (sum);
```

Diagram: A box containing `return(num1+num2);` has an arrow labeled "OR" pointing to the `return (sum);` line in the code above.

```
int main(void)
{
    int num1, num2; /* input: the two numbers */
    int sum;

    /* get the two numbers from the user */
    printf("Enter Number 1 > ");
    scanf("%d", &num1);
    printf("Enter Number 2 > ");
    scanf("%d", &num2);

    /* call the function that calculate the sum of two numbers */

    sum = fun_sum(num1,num2);

    printf("sum = %d\n",sum);

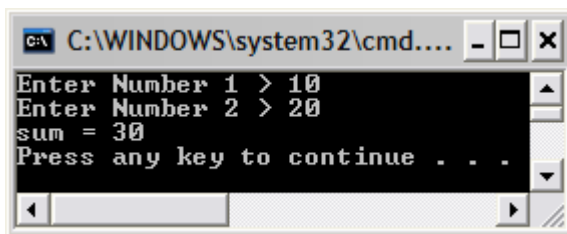
    return (0);
}
```

Memory: main()

num1 (int)	num2 (int)	sum (int)
10	20	30

Memory: fun_sum()

num1 (int)	num2 (int)	sum (int)
10	20	30



4) Function with Argument & Return Value

Write two functions. One to calculate the sum of two numbers and the other to display the result (the sum)?

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

```
int fun_sum(int num1, int num2)
{
    return(num1+num2);
}
```

or

```
int sum;
sum = num1 + num2;
return (sum);
```

```
void display_result (int result)
{
    printf(" %d\n",result);
}
```

Memory: main()

num1 (int)	num2 (int)	sum (int)
20	30	50

Memory: fun_sum()

num1 (int)	num2 (int)
20	30

```
int main(void)
{
```

```
    int num1, num2; /* input: the two numbers */
    int sum;
```

```
    /* get the two numbers from the user */
```

```
    printf("Enter Number 1 > ");
    scanf("%d", &num1);
    printf("Enter Number 2 > ");
    scanf("%d", &num2);
```

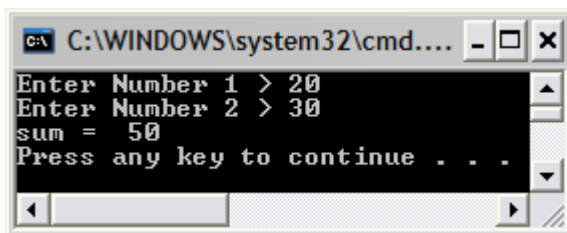
```
    /* call the function that calculate the sum of two numbers */
```

```
    sum = fun_sum(num1,num2);
    printf("sum = ");
    display_result(sum);
```

```
    return (0);
}
```

Memory: display_result()

sum (int)
50



5) Function w/o Argument but Return a Value

Write a function that asks the user to enter two numbers then calculate the sum?

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

```
int fun_sum(void)
```

```
{  
    int num1, num2; /* input: the two numbers */  
    int sum;
```

```
    /* get the two numbers from the user */
```

```
    printf("Enter Number 1 > ");
```

```
    scanf("%d", &num1);
```

```
    printf("Enter Number 2 > ");
```

```
    scanf("%d", &num2);
```

```
    sum = num1 + num2;
```

```
    return (sum);  
}
```

or

```
return (num1 + num2);
```

```
int main(void)
```

```
{  
    int sum;
```

```
    /* call the function that gets num1 and num2 then calculate the sum */
```

```
    sum = fun_sum();
```

```
    printf("The sum is %d\n",sum);
```

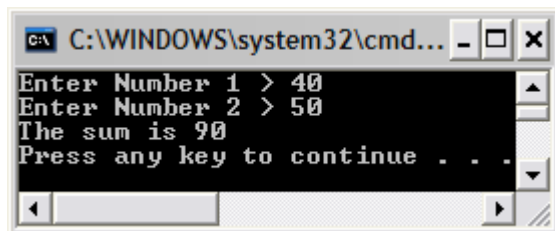
```
    return (0);  
}
```

Memory: main()

sum (int)
90

Memory: fun_sum()

num1 (int)	num2 (int)	sum (int)
40	50	90



```
C:\WINDOWS\system32\cmd...  
Enter Number 1 > 40  
Enter Number 2 > 50  
The sum is 90  
Press any key to continue . . .
```