Exercise Problems

1. Write a program to compute the sum of three numbers and output it to the user. Use only two variables `x` and `sum` in your program. After each step of execution, show the memory state diagram.

2. An outline of a C program for doing the above task is given below. Fill in the missing parts.

```
#include<stdio.h>
int main()
{
      int x,sum;
      sum=0;
      printf("Enter the first number\n");
      scanf("%d",&x);
      sum = sum+____;
      printf("Enter the second number\n");
      scanf("%d",&x);
      sum =_________________;
      printf("Enter the _______ number\n");
      scanf("%d",_____);
      sum =_________________;
      printf("sum is %d \n", ______);
      return 0;
}
```

3. We need to find the n^{th} term of an arithmetic progression. Write a program that takes the first term, common difference and `n` from the user and output the n^{th} term to the user. After each step of execution of your program, show the memory state diagram.

4. An outline of a C program for doing the above task is given below. Fill in the missing parts.

```
#include<stdio.h>
int main()
{
      int a,n,d,term;
      printf("Enter the first term of the AP\n");
      scanf("%d",&a);
      printf("Enter the common difference of the AP\n");
      scanf("%d",&d);
      printf("Enter the value of n\n");
      ______________________;
      term = a + (___________) * ______________;
      printf("n-th term is of the AP is %d \n", term);
      return 0;
}
```

5. Read the next program and guess what it does. Compile the program on a computer and execute it by giving 11 and 17 as inputs. Repeat the execution by giving 12 and 15 as inputs. Do the results match with your guess?

```
#include<stdio.h>
int main()
{
      int x, y;
      printf("Enter the first number\n");
      scanf("%d",&x);
      printf("Enter the second number\n");
      scanf("%d",&y);
      printf("Average of the two numbers is %d \n", (x+y)/2);
      return 0;
}
```

6. Suppose you want to find the maximum of two numbers. Is it possible to write a program that does this task, using only the tools that we learned so far?