Assignment 1 - Computer Programming (0455-3391-01)

http://www.cs.tau.ac.il/~efif/courses/ComputerProgramming

Due: November 12, 2002

Problem 1

It is possible to make simple pictures by printing text. For example, my name might appear as:

```
  ____  _        ____             _
 /_____/_) o    /__________  __  //
(____ (   (    (    (_/ (_/-(-'_(/
                        _/
```

Write a program that prints a simple picture. Your picture should have at least ten lines of text. You will not be graded on artistic quality, although extraordinary work may be displayed on the web site for this course.

Problem 2

The program bellow should display a line reading:

```
c*c = 25.000000
```

Make it work.

```
#include <Stdio.h>
integer main()
(
    float a, b, c;
    a = 3;
    b = 4.0:
    c = a*a + b*b
    print("c*c = %d/n", c);
    return 0;
)
```

Problem 3

1. Write a program that calculates the average of two floating point numbers. You will need to use the **scanf** function.

   ```
   #include <stdio.h>
   int scanf( const char *format, ... );
   ```

The **scanf** function scans input according to a *format*. This format may contain conversion specifiers; the results from such conversions, if any, are stored through the *pointer* arguments that follow the *format* argument. The **scanf** function reads input from the standard input stream *stdin*.

For example, the program bellow, scans in two integer numbers, and prints them out.

```
#include <stdio.h>
int main()
{
  int a, b;
  scanf("%d %d", &a, &b);
  printf("%d %d\n", a, b);
  return 0;
}
```

2. Write a program that calculates the average of n floating point numbers. The program should read an integer number, say n, followed by n floating point numbers. It should print out the average before it ends.

3. Write a program that calculates the floating point average of n integer numbers, and computes the smallest and largest numbers among the n input numbers. As before, the program should read an integer number, say n, followed by n integers this time. It should print out the average, the smallest, and the largest numbers before it ends.

Problem 4

Replace the **for** statement with an equivalent **while** statement in the program bellow

```
#include <stdio.h>
int main()
{
    int i;
    for(i = 0; i < 10; i = i + 1)
        printf("i is %d\n", i);
}
```

Problem 5

Write a program to print this triangle:

```
*
**
***
****
*****
******
*******
********
*********
**********
```

Don't use ten printf statements; use two nested loops instead. You'll have to use braces around the body of the outer loop, if it contains multiple statements:

```
for (i = 1; i <= 10; i = i + 1)
{
    /* multiple statements */
    /* can go in here */
}
```

(Hint: a string you hand to printf does not have to contain the newline character '\n')