CS16, 10S, **H20**, due **Wed Lecture 05.12**—The Type Expresssion Game (handout, code)—Total Points: 50
Available online as http://www.cs.ucsb.edu/~pconrad/cs16/10S/homework/H20—printable PDF

Name: (4 pts) _____ Umail Address: (4 pts) _____ @umail.ucsb.edu

Lab Section (2 pts)—circle one: 9am 10am 11am noon

For this homework, the preparation is material on the following handout: http://www.cs.ucsb.edu/~pconrad/cs16/10S/homework/H20/handout (pdf link)

Once you've read that handout, write answers to the questions on this sheet (use the PDF link to print a copy of this if you weren't in class).

Together with this homework assignment, there is a program

- If you didn't get the program handout, you can find the program at: http://www.cs.ucsb.edu/~pconrad/cs16/10S/homework/H20/code/types.c

Assuming each of the expressions below appeared in this program, indicate the type they would have. The first few are done for you as an example.

Also read Sections 6.4, 7.1 and 7.2 in Etter for the next Midterm Exam.

Hints--for full credit:

- don't write *pointer to character*;
  instead, write **char ***
- don't write *address of int*;
  instead, write **int ***

(40 pts)—2 points each for the ones not already filled in

Expression	Type		Expression	Type
x	int		end	
&x	int *		end.hrs	
*x	error		end->min	
c.center	struct Point		&(end->min)	
&(c.center.x)	double *		pt	
*val	double		argc	
c.x	error		&argc	
&end	struct Time **		*argc	
(*cir).x			argv[0]	
(*cir).radius			argv[0][0]	
cir->center			&num	
cir->center.y			&y	
cir->center->y			&val	
start			*num	

End of H20

Code for CS16, Homework H20, Spring 2010

```
// types.c  Code for CS16 homework problem, Spring 2010, H20
// P. Conrad, CS Dept., UCSB.

#include

struct Point {
  double x;
  double y;
};

struct Time {
  int hrs;
  int min;
};

struct Circle {
  struct Point center;
  double radius;
};

int main(int argc, char *argv[])
{
  int x;
  int *num;
  double y;
  double *val;
  struct Circle c;
  struct Circle *cir;
  struct Point pt;
  struct Point *p;
  struct Time start;
  struct Time *end;

  // Program does no useful work
  // It is just the basis of a homework assignment about types

  // Pretend there is useful code here, and then
  // answer questions about the types of various expressions
  // as if they appeared right here.

  return 0;

}
```