Your name: Example design Date: _____

Problem: On target (assignment 3)

Problem description:

- fire arrows, compute scores
- compute score histogram
- compute mean, median, standard dev.

Input name	Description	Data type
rand x/y coordinates	x/y position of simulated arrow, 0 – 1900 (sum of 8 rand ints in range 0-275)	int

Output data:	Output form:	Data type:
for ea. poss. score { histogram count	printed	int
histogram bar	printed	text
mean score	"	double
median "	"	"
standard dev.	"	"

Strategy:

- Simulate 1000 arrows, compute scores, store in array *
- count occurrences of scores, store in histogram array *
- print histogram
- compute mean, median, std dev, print them

Control flow sketch:

Fire arrows

```
int scores[1000];
for(i=0; i<1000; i++){
  x = <rand int 0-1900, sum of 8 rand ints 0-275>
  y = <as above>
  xdist = 950 - x
  ydist = 950 - y
  dist = sqrt(xdist^2 + ydist^2)
  score = <based on dist>
  scores[i] = score
}
```

Build hist. array

```
int hist[11]
  = {0};

for(i=0; i<1000; i++){
  int score =
    scores[i];

  int index =
    <index of score
     in hist array>

  hist[index]++;
}
```

Similar problems:

Hist array:

hist[0] - # of 0 scores

hist[1] - # of 100 scores

;

etc.

:

hist[10] - # of 1000 scores