Computational Physics

Homework - c language

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1. Run the following code and understand the behavior.

```c
#include <stdio.h>

int main(void)
{
  printf("Audible or visual alert? \a\n");
  printf("Form feed. \f\n");
  printf("This escape, \r, moves the position to the first
of the current line.\n");
  printf("Vertical tab \v is tricky, as its behavior is
unspecified.\n");

  return 0;
}
```

2. How many elements does the array

```
int foo[5];
```

contain? Which is the first element? The last?

What's wrong with this scrap of code?

```
int foo[5];
for(i=1;i<=5;i=i+1)
  foo[i] = 0;
```

(What happens if you compile it and run? I mean of course with the appropriate `main()` function)

3. Write a C program does the following in steps.

1) Generate 1,000 random numbers that are uniformly distributed in [0,1]

2) Multiply random numbers by 10 so that they are now within [0,10]

3) Make an array of the length 10, for example `foo[10]`, loop over the multiplied random number (r_i) and

increase `foo[i]` by one if the given random number r_i is

$$i*10 < r_i < (i+1)*10$$

4) Print out all contents of `foo[i]`. The content of `foo[i]` should be close to 100.