Discussion

Feb 2, 2015
Announcements

1. Midterm on Feb 17th.
2. ‘what’s the output’, ‘find errors’, write a program.
3. How to prepare: understand your homeworks well. Understand the examples shown in class well. Try writing your own code for fun.
4. Practice midterm will be posted soon!
for-loop

for(STEP1; STEP2; STEP4) {
  <STEP3>
  ...
  ...
}

1. Initialize.
2. Check condition
3. do stuff
4. change value (if that)
5. Step 2.

Notes:
1. If you don't put the curly brackets, only the first line is with the loop.
2. Can have one or more of steps1 - steps4 as empty.
for-loop example (what’s the o/p)

```c
int i;
for(i = 0; i < 10; i++)
    printf("%d\n",i);
```

0
1
2
3
4
5
6
7
8
9
for-loop example (what’s the o/p)

```c
int i;
for(i = 0; i < 2; i++)
    printf("%d ",i);
printf("%d ",i);
```

ANS: c. 0 1 2

ANS:

a. 0 0 1 1 2 2
b. 0 0 1 1
c. 0 1 2
d. 0 0 1 1 2
int num = 10, i, sum = 0;

for(i = 0; i <= num; i++)
    sum = sum + i;

printf("%d ", sum/10.0);
printf("%lf ", sum/10.0);
printf("%d ", sum/10);

ANS:  5  5.500000  5.500000
what’s the output

for(i = -1 ; i > 10 ; i = i - 2)
{
    printf("i = %d \n", i);
}

ANS: No output, since the condition i > 10 is never met!
what’s the output

```c
for(i = -129; i < -10 ; i--)
{
}
printf("i = %d\n",i);
```

ANS: infinite loop.. the program crashes, and never reaches the printf statement!
for(i = -129; i < -10 ; i++)
{

}

printf("i = %d\n",i);

ANS: i = -10
while-loop

while(condition)
{
    ...
    ...
    ...
    ...<do-stuff>
    ...
    ...
}  
STEP1: check condition   
STEP2: do-stuff   
STEP3: back to STEP1

NOTE: for an while are interchangeable. Any for an be written as a while, and any while, a for.
do-while

do
{
  ...
  ...
  ...
  ...
  ...
  <do-stuff>
  ...
  ...
} while(condition)
STEP1: do-stuff
STEP2: check condition
STEP3: back to STEP1
Think about this..

1. Can every for be written as a while?
   a. YES
2. Can every for be written as a do-while?
   a. NO
3. Can every do-while be written as a for?
   a. YES
4. Can every while be written as a do-while?
   a. NO
5. Can every do-while be written as a while?
   a. YES
Evaluate

```c
int x = 9, y = 0, ans;
print("x = %d, y = %d\n", x,y);
ans = --y || --x;
printf("x = %d, y = %d, ans = %d\n", x,y,ans);

x = 9, y = 0

x = 9, y = -1, ans = 1
```