Programs from lecture for 1/20/99

Two versions of each program are given, one is the original, the second is the program as modified in class. The two versions are listed on consecutive pages.

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```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
   int indata;
   int count;

   scanf("%d",&indata);
   count = 0;
   while (indata>0)
   {
      if (indata%2 == 1)
      {
         count = count + 1;
      }
      indata = indata / 2;
   }
   printf("The count is %d\n",count);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
   int indata;
   int count;

   scanf("%d",&indata);
   count = 0;
   for ( ; indata>0 ; indata /= 2)
   {
      if (indata%2)
      {
         count++;
      }
   }
   printf("The count is %d\n",count);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    int obig;
    int osmall;
    int big;
    int small;
    int temp;
    int rem;

    scanf("%d",&obig);
    scanf("%d",&osmall);
    big = obig;
    small = osmall;
    if (small > big)
    {
        temp = big;
        big = small;
        small = temp;
    }
    while (small > 0)
    {
        rem = big % small;
        big = small;
        small = rem;
    }
    printf("GCD of %d and %d is %d\n",obig,osmall,big);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    int obig;
    int osmall;
    int big;
    int small;
    int temp;
    int rem;

    scanf("%d",&obig);
    scanf("%d",&osmall);
    if (osmall > obig)
    {
        temp = obig;
        obig = osmall;
        osmall = temp;
    }
    for (big = obig,small = osmall ;
         small > 0 ;
         rem = big % small,big = small,small = rem);
    printf("GCD of %d and %d is %d\n",obig,osmall,big);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    long fact;
    int i,n;

    scanf("%d",&n);
    fact = 1;
    i = 1;
    while (i <= n)
    {
        fact = fact * i;
        i = i + 1;
    }
    printf("%d factorial is %ld\n",n,fact);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    long fact;
    int i,n;

    printf("Enter a number: ");
    scanf("%d",&n);
    fact = 1;
    for (i = 1;i <= n;i++)
    {
        fact = fact * i;
    }
    printf("%d factorial is %ld\n",n,fact);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    int num,sum;

    printf("Enter a Number: ");
    scanf("%d",&num);
    sum = 0;
    while (num != 0)
    {
        sum = sum + num;
        printf("Enter a Number: ");
        scanf("%d",&num);
    }
    printf("The total is: %d.",sum);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    int num,sum;

    printf("Enter a Number: ");
    scanf("%d",&num);
    sum = 0;
    for ( ;num != 0; )
    {
        sum = sum + num;
        printf("Enter a Number: ");
        scanf("%d",&num);
    }
    printf("The total is: %d.",sum);
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    double sum;
    int i;

    sum = 0.0;
    i = 0;
    while (i<10)
    {
        sum = sum + 0.1;
        i = i + 1;
    }
    if (sum == 1.0)
    {
        printf("The Loop Worked\n");
    }
    else
    {
        printf("The Loop Failed -- %f\n",sum);
    }
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    double sum;
    int i;

    for (sum=0.0,i=0 ; i<10 ; sum += 0.1,i++);
    if (sum == 1.0)
    {
        printf("The Loop Worked\n");
    }
    else
    {
        printf("The Loop Failed -- %f\n",sum);
    }
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    long power;
    int i;

    power = 1;
    i = 0;
    while (i<101)
    {
        printf("2 to the power %d is %ld\n",i,power);
        i = i + 1;
        power = power * 2;
    }
}
```

```c
#include <stdio.h>
#include <stdlib.h>

void main()
{
    long power;
    int i;

    power = 1;
    for (i=0,power=1 ; i<101 ; i++,power *= 2)
    {
        printf("2 to the power %d is %ld\n",i,power);
    }
}
```