Function Overview (1B)

f1.c

```c
#include <stdio.h>

void func(int x) {

    printf("&x= %p x= %d \n", &x, x);

    x *= 2;

    printf("&x= %p x= %d \n", &x, x);
}

void main(void) {
    int a = 100;

    printf("&a= %p a= %d \n", &a, a);

    func( a );

    printf("&a= %p a= %d \n", &a, a);

}
```
```
&a= 0xbf94b1dc a= 100
&x= 0xbf94b1c0 x= 100
&x= 0xbf94b1c0 x= 200
&a= 0xbf94b1dc a= 100
```

f2.c

```c
#include <stdio.h>

int func(int x) {

  printf("&x= %p x= %d \n", &x, x);

  x *= 2;

  printf("&x= %p x= %d \n", &x, x);

  return x;
}

void main(void) {
  int a = 100;

  printf("&a= %p a= %d \n", &a, a);

  a = func( a );

  printf("&a= %p a= %d \n", &a, a);

}
```

```
&a= 0xbfff505c a= 100
&x= 0xbfff5040 x= 100
&x= 0xbfff5040 x= 200
&a= 0xbfff505c a= 200
```

f3.c

```
#include <stdio.h>

void func(int *x) {

  printf("&x= %p x= %p *x= %d \n", &x, x, *x);

  *x *= 2;

  printf("&x= %p x= %p *x= %d \n", &x, x, *x);
}

void main(void) {
  int a = 100;

  printf("&a= %p a= %d \n", &a, a);

  func( &a );

  printf("&a= %p a= %d \n", &a, a);

}
```
```
&a= 0xbfa7d7fc a= 100
&x= 0xbfa7d7e0 x= 0xbfa7d7fc *x= 100
&x= 0xbfa7d7e0 x= 0xbfa7d7fc *x= 200
&a= 0xbfa7d7fc a= 200
```

f4.c

```c
#include <stdio.h>

void exchange(int *x, int *y) {
  int t;

  printf("&x= %p x= %p *x= %d \n", &x, x, *x);
  printf("&y= %p y= %p *y= %d \n", &y, y, *y);

  t = *x;
  *x = *y;
  *y = t;

  printf("&x= %p x= %p *x= %d \n", &x, x, *x);
  printf("&y= %p y= %p *y= %d \n", &y, y, *y);
}

void main(void) {
  int a = 100;
  int b = 200;

  printf("&a= %p a= %d \n", &a, a);
  printf("&b= %p b= %d \n", &b, b);

  exchange( &a, &b );

  printf("&a= %p a= %d \n", &a, a);
  printf("&b= %p b= %d \n", &b, b);

}
```

```
&a= 0xbff6fecc a= 100
&b= 0xbff6fec8 b= 200
&x= 0xbff6feb0 x= 0xbff6fecc *x= 100
&y= 0xbff6feb4 y= 0xbff6fec8 *y= 200
&x= 0xbff6feb0 x= 0xbff6fecc *x= 200
&y= 0xbff6feb4 y= 0xbff6fec8 *y= 100
&a= 0xbff6fecc a= 200
&b= 0xbff6fec8 b= 100
```

t1.c

```c
#include <stdio.h>


int main(void)
{
  int S1, S2, S3;

  { int n=1;        // parameter var n : input
    int k, S=0;
    for (k=1; k<=n; ++k) S += k;
    S1 = S;         // return var S : output
  }
  printf("psum(1) = %d \n", S1);

  { int n=2;        // parameter var n : input
    int k, S=0;
    for (k=1; k<=n; ++k) S += k;
    S2 = S;         // return var S : output
  }
  printf("psum(2) = %d \n", S2);

  { int n=3;        // parameter var n : input
    int k, S=0;
    for (k=1; k<=n; ++k) S += k;
    S3 = S;         // return var S : output
  }
  printf("psum(3) = %d \n", S3);


}
```

a1.c

```c
// a1.c
#include <stdio.h>

int psum (int n) // parameter var n : input
{
  int k, S=0;     // local variable
  for (k=1; k<=n; ++k) S += k;
  return S;       // return var S : output
}

int main(void)
{
  int S1, S2, S3;

  S1 = psum( 1 );
  printf("psum(1) = %d \n", S1);

  S2 = psum( 2 );
  printf("psum(2) = %d \n", S2);

  S3 = psum( 3 );
  printf("psum(3) = %d \n", S3);

}
```

A2.c

```c
// a2.c
#include <stdio.h>


int psum (int n); // psum prototype

int main(void)
{
  int S1, S2, S3;

  S1 = psum( 1 );
  printf("psum(1) = %d \n", S1);

  S2 = psum( 2 );
  printf("psum(2) = %d \n", S2);

  S3 = psum( 3 );
  printf("psum(3) = %d \n", S3);

}


int psum (int n) // psum definition
{
  int k, S=0;
  for (k=1; k<=n; ++k) S += k;
  return S;
}
```

a3.c

```c
// a3.c  main only
#include <stdio.h>


int psum (int n); // psum prototype

int main(void)
{
  int S1, S2, S3;

  S1 = psum( 1 );
  printf("psum(1) = %d \n", S1);

  S2 = psum( 2 );
  printf("psum(2) = %d \n", S2);

  S3 = psum( 3 );
  printf("psum(3) = %d \n", S3);

}
```

a4.c

```
// a4.c  psum only

int psum (int n) // parameter var n : input
{
   int k, S=0;     // local variable
   for (k=1; k<=n; ++k) S += k;
   return S;       // return var S : output
}
```

a5.c

```
// a5.c  main only
// a5.h  header file : psum prototype
#include <stdio.h>
#include "a5.h"


int main(void)
{
  int S1, S2, S3;

  S1 = psum( 1 );
  printf("psum(1) = %d \n", S1);

  S2 = psum( 2 );
  printf("psum(2) = %d \n", S2);

  S3 = psum( 3 );
  printf("psum(3) = %d \n", S3);

}
```

5.h

```
int psum( int );
```