1) hi
2) hello
3) bye
4) bye

5) hello
6) bye
7) bye
8) hi

9) hello
10) bye
11) bye
12) hello

13) bye
14) bye
15) hi
16) hello

17) bye
18) bye
19) hello
20) bye

21) bye
22) hi
23) hello
24) buy

25) bye
26) hello
27) bye
28) bye

1) hi
2) bye
3) hi
4) bye

5) hi
6) bye
7) bye
8)

9)
10)
11)
12)

13)
14)
15)
16)

17)
18)
19)
20)

21)
22)
23)
24)

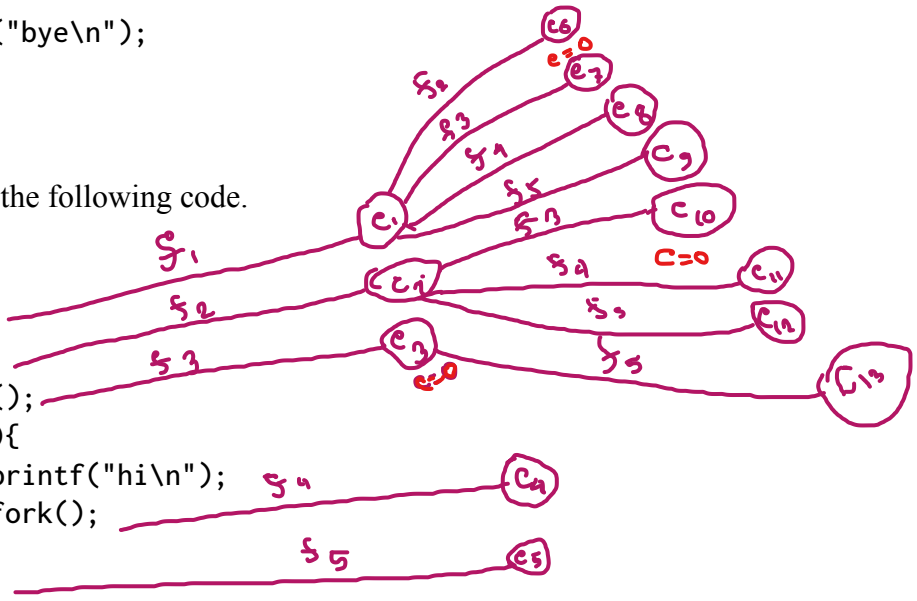
Practice Problems on Fork()

1. Find outputs of the following code.

```
main(){
        fork();
        fork();
        printf("hi\n");
        fork();
        printf("hello\n");
        fork();
        printf("bye\n");
}
```

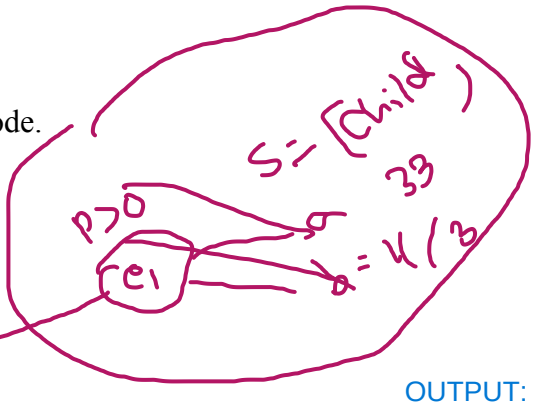
2. Find outputs of the following code.

```
main(){
1       fork();
2       fork();
3       c=fork();
        if(c>0){
                printf("hi\n");
4               fork();
        }
5       fork();
        printf("bye\n");
}
```



3. Find outputs of the following code.

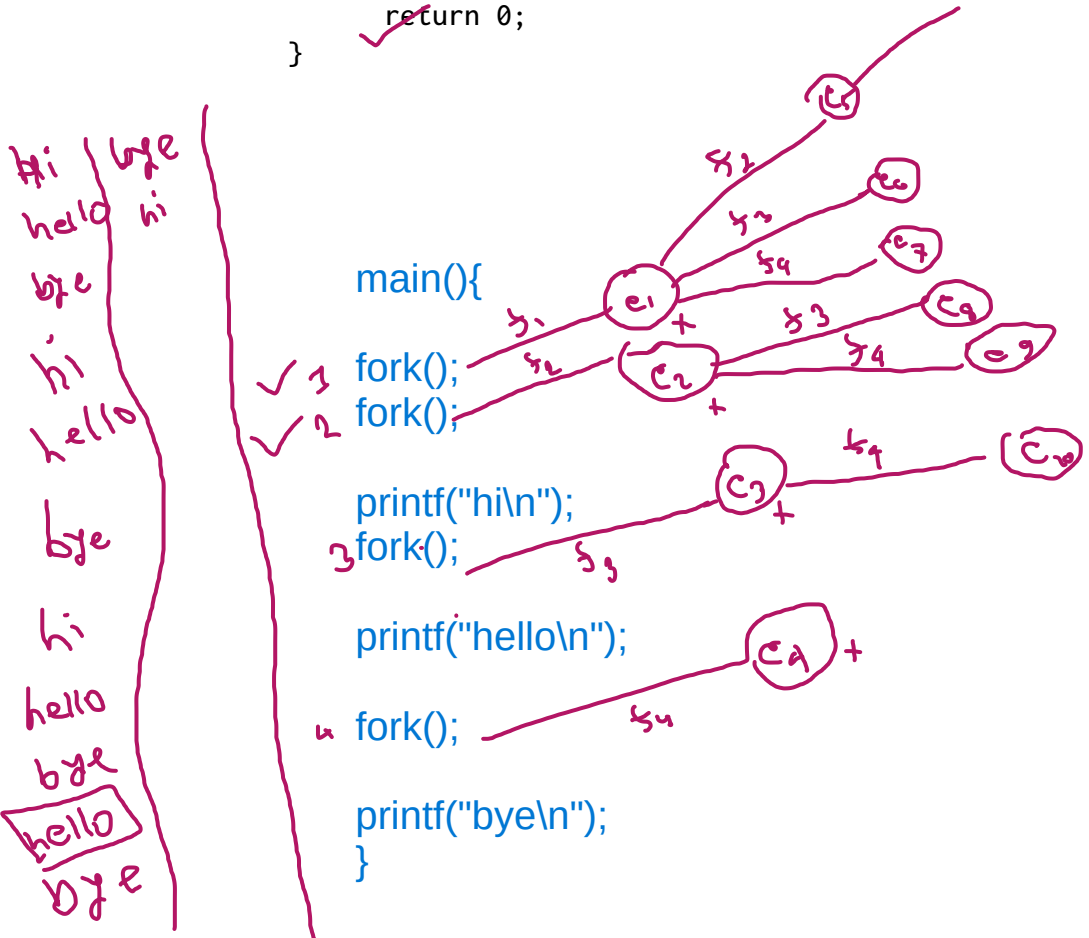
```
int main(){
    pid_t p;
    int a=3;
    int b=11;
    char s[20];
    p=fork();
    if(p<0){
          printf("fork failed\n");
    }
    else if(p==0){
          strcpy(s,"child");
          a=a*b;
          b=b/a;
    }
    else{
          wait();
          strcpy(s,"parent");
          a=a+b;
          b=b-a;
    }
    printf("%s is printing a= %d\n",s,a);
    printf("%s is printing b= %d\n",s,b);

    return 0;
}
```



OUTPUT:

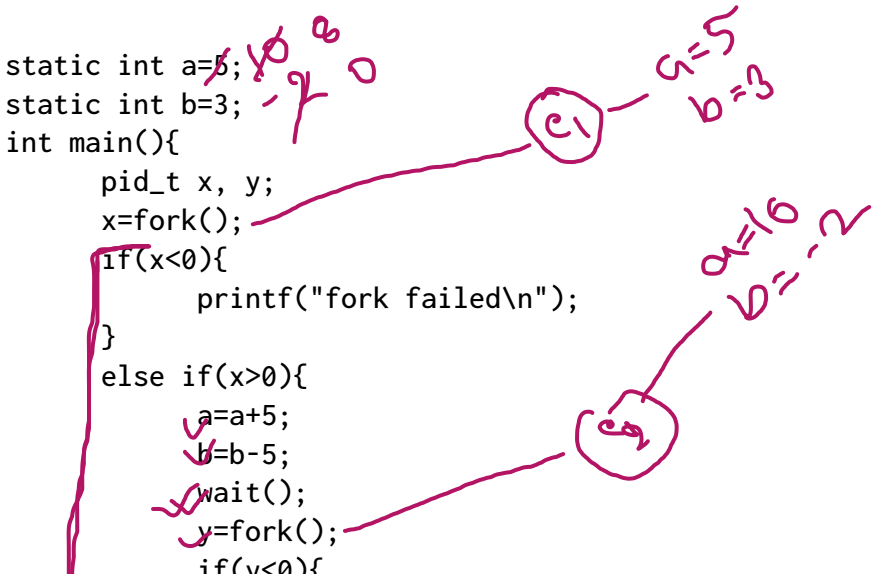
Child is printing a= 33
Child is printing b= 11/33 ~ 0

parent is printing a= 14
parent is printing b= -3



4. Find outputs of the following code.

```
static int a=5;
static int b=3;
int main(){
      pid_t x, y;
      x=fork();
      if(x<0){
            printf("fork failed\n");
      }
      else if(x>0){
            a=a+5;
            b=b-5;
            wait();
            y=fork();
            if(y<0){
                  printf("fork failed\n");
            }
            else if(y>0){
                  wait();
                  a=a-2;
                  b=b+2;
            }
            else{
                  a=a*2;
                  b=b/3;
            }
      }
      else{
            a=a/2;
            b=b*3;
      }
      printf("a= %d\n",a);
      printf("b= %d\n",b);

      return 0;
}
```



OUTPUT:

a= 5/2 =2
b= 3*3 = 9

a= 10*2 = 20
b= -2/3 = 0

a = 8
b = 0