

# Coin Changing (Dynamic Approach)

Practice Problem1:

```
#include <stdio.h>

#define MIN(x, y) (((x) < (y)) ? (x) : (y))

const int INF = 100000;

int coin_change(int d[], int n, int k)
{
    int M[n+1];
    M[0] = 0;
    int i, j;
    for(j=1; j<=n; j++)
    {
        int minimum = INF;
        for(i=1; i<=k; i++)
        {
            if(j >= d[i])
            {
                minimum = MIN(minimum, 1+M[j-d[i]]);
            }
        }
        M[j] = minimum;
    }
    return M[n];
}

int main()
{
    int change=16;
```

```

int d[] = {1,2,8,12};
int k=sizeof(d)/sizeof(d[1]);

printf("Coin Need: %d\n", coin_change(d, change,k ));
return 0;
}

```

Practice Problem2:

```

#include <stdio.h>

#define MIN(x, y) (((x) < (y)) ? (x) : (y))

const int INF = 100000;

int coin_change(int d[], int n, int k)
{
    int M[n+1];

    M[0] = 0;

    int i, j;

    for(j=1; j<=n; j++)
    {
        int minimum = INF;

        for(i=1; i<=k; i++)
        {
            if(j >= d[i])
            {
                minimum = MIN(minimum, 1+M[j-d[i]]);
            }
        }

        M[j] = minimum;
    }
}

```

```

    return M[n];
}

int main()
{
    int change=16;
    int d[] = {1,5,10};
    int k=sizeof(d)/sizeof(d[1]);

    printf("Coin Need: %d\n", coin_change(d, change,k ));
    return 0;
}

```

## Fibonacci Number (Dynamic Approach)

Practice Problem1:

```

#include<stdio.h>

int fib(int n)
{
    int f[n+2],i;
    f[0] = 0;
    f[1] = 1;
    for (i = 2; i <= n; i++)
    {
        f[i] = f[i-1] + f[i-2];
    }
    return f[n];
}

```

```

int main()
{
    int n;
    printf("\nEnter Any Number:");
    scanf("%d",&n);
    printf("\nFibonacci Number: %d",fib(n));
    return 0;
}

```

Practice Problem2:

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

```

int fib(int n)
{
    int f[n+2],i;
    f[0] = 0;
    f[1] = 1;
    for (i = 2; i <= n; i++)
    {
        f[i] = f[i-1] + f[i-2];
    }
    return f[n];
}

```

```

int main()
{
    int n,t;
    printf("Test Case:");
    scanf("%d",&t);

```

```
for(int i=1;i<=t;i++){  
    printf("\nNumber%d:",i);  
    scanf("%d",&n);  
    printf("\nFibonacci: %d",fib(n));  
}  
  
return 0;  
}
```