

# Java Class File Format

모두 Class File Format에 대한 그림이다.  
이후의 슬라이드에서  
이 그림들을 이해해보자.

```
ClassFile {  
    u4          magic;  
    u2          minor_version;  
    u2          major_version;  
    u2          constant_pool_count;  
    cp_info     constant_pool[constant_pool_count-1];  
    u2          access_flags;  
    u2          this_class;  
    u2          super_class;  
    u2          interfaces_count;  
    u2          interfaces[interfaces_count];  
    u2          fields_count;  
    field_info  fields[fields_count];  
    u2          methods_count;  
    method_info methods[methods_count];  
    u2          attributes_count;  
    attribute_info attributes[attributes_count];  
}
```

from Oracle

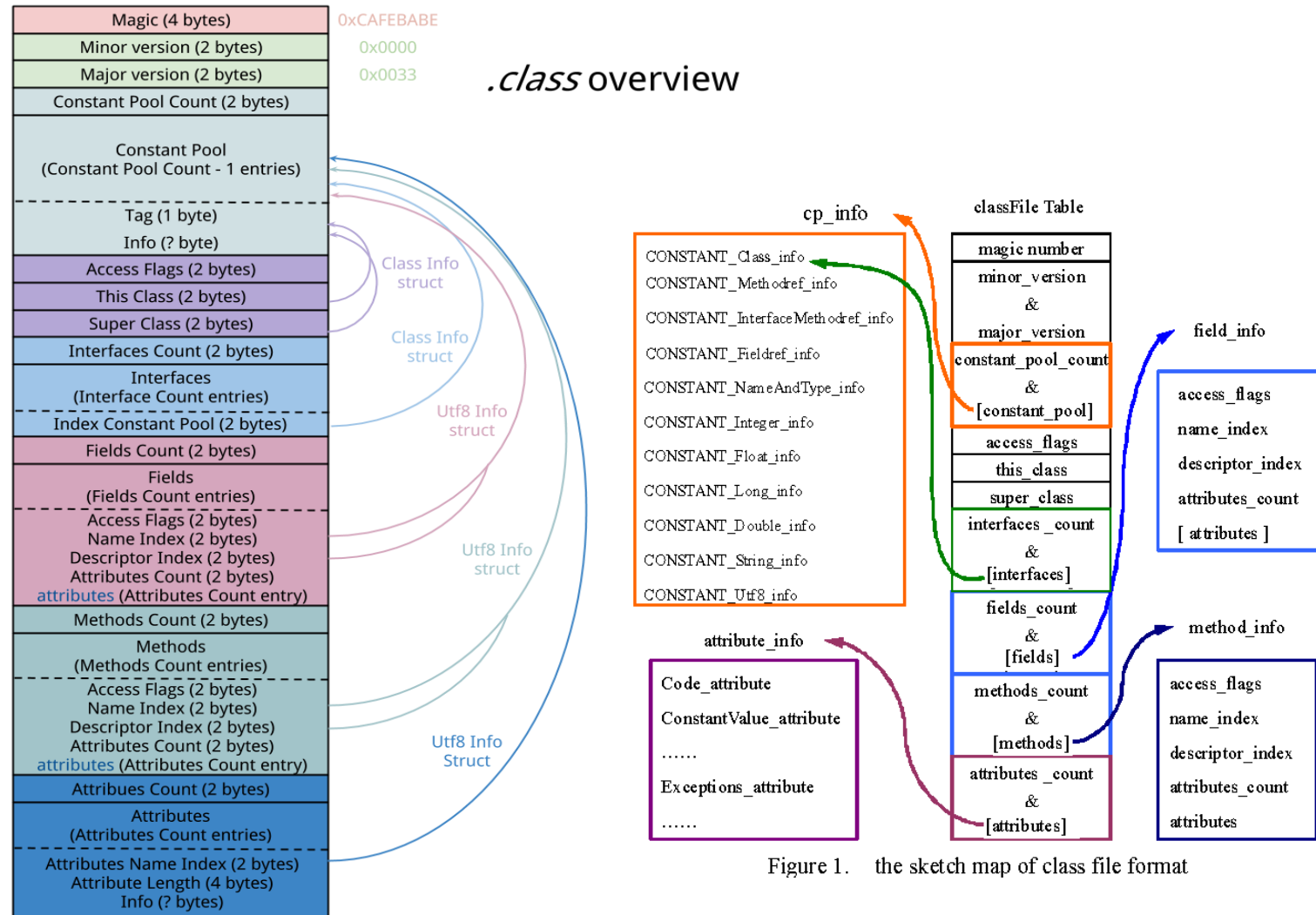


Figure 1. the sketch map of class file format

# Java Class File Format

```
ClassFile {  
    u4      magic;  
    u2      minor_version;  
    u2      major_version;  
    u2      constant_pool_count;  
    cp_info  constant_pool[constant_pool_count-1];  
    u2      access_flags;  
    u2      this_class;  
    u2      super_class;  
    u2      interfaces_count;  
    u2      interfaces[interfaces_count];  
    u2      fields_count;  
    field_info fields[fields_count];  
    u2      methods_count;  
    method_info methods[methods_count];  
    u2      attributes_count;  
    attribute_info attributes[attributes_count];  
}
```

from Oracle

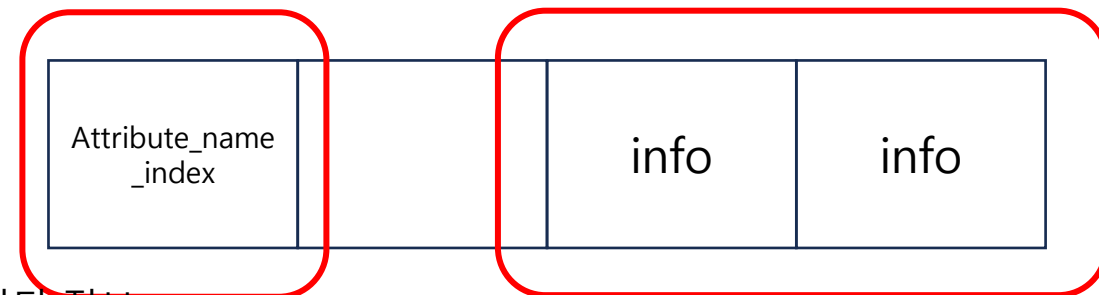
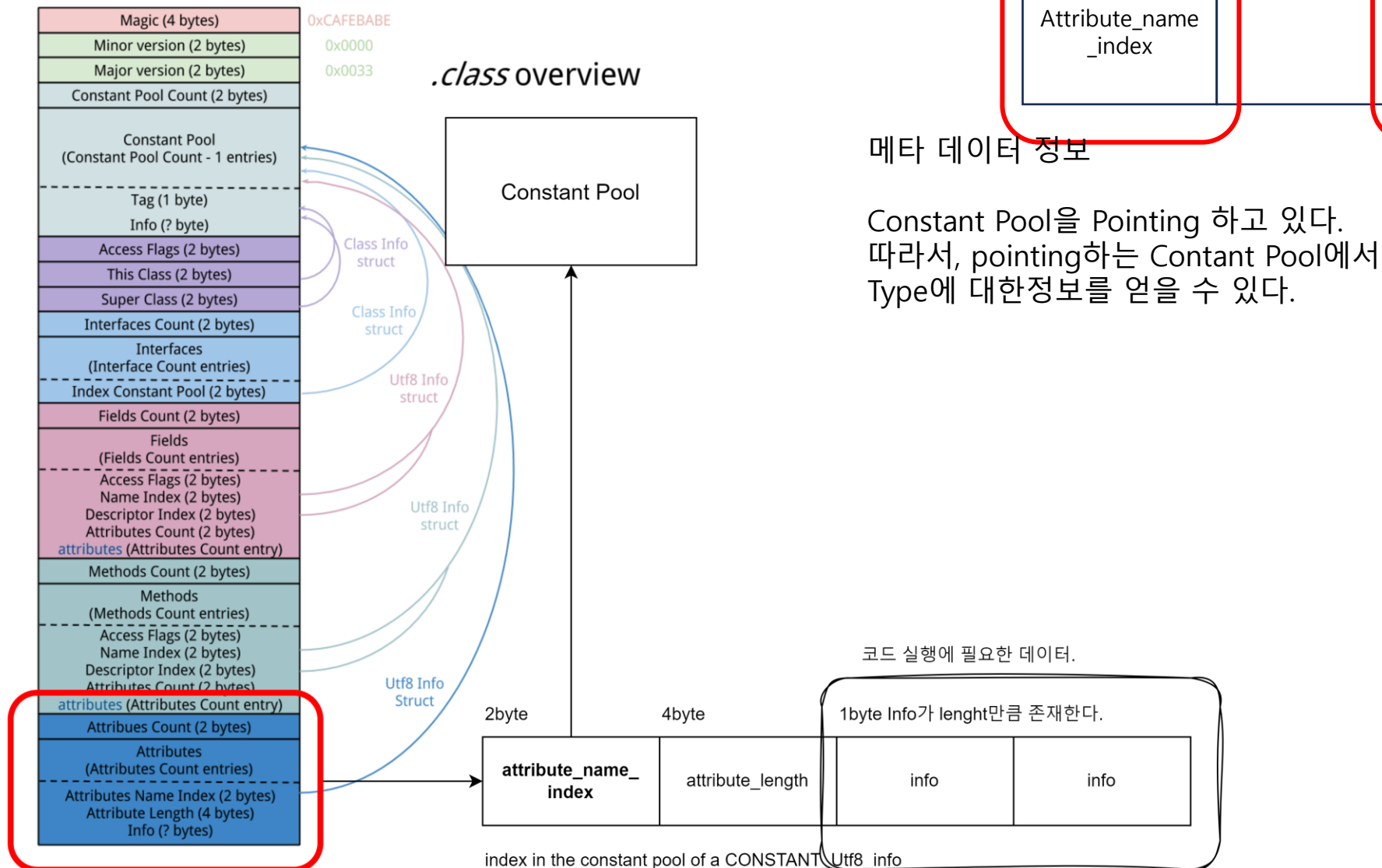
## Constant Pool

```
#1 = Methodref      #6.#16      // java/lang/Object.<init>():V  
#2 = Fieldref       #17.#18     // java/lang/System.out:Ljava/io/PrintStream;  
#3 = String         #19         // Hello from Hello.main!  
#4 = Methodref      #20.#21     // java/io/PrintStream.println:(Ljava/lang/String;)V  
#5 = Class          #22         // Hello  
#6 = Class          #23         // java/lang/Object  
#7 = Utf8           <init>  
#8 = Utf8           ()V  
#9 = Utf8           Code  
#10 = Utf8          LineNumberTable  
#11 = Utf8          main  
#12 = Utf8          ([Ljava/lang/String;)V  
#13 = Utf8          StackMapTable  
#14 = Utf8          SourceFile  
#15 = Utf8          Hello.java  
#16 = NameAndType   #7:#8       // "<init>":()V  
#17 = Class         #24         // java/lang/System  
#18 = NameAndType   #25:#26     // out:Ljava/io/PrintStream;  
#19 = Utf8          Hello from Hello.main!  
#20 = Class         #27         // java/io/PrintStream  
#21 = NameAndType   #28:#29     // println:(Ljava/lang/String;)V  
#22 = Utf8          Hello  
#23 = Utf8          java/lang/Object  
#24 = Utf8          java/lang/System  
#25 = Utf8          out  
#26 = Utf8          Ljava/io/PrintStream;  
#27 = Utf8          java/io/PrintStream  
#28 = Utf8          println  
#29 = Utf8          (Ljava/lang/String;)V
```

Class File의 This\_Class는 Constant Pool을 Pointing 하고 있다.  
Class File은 이와같은 방법을 통해 정보를 표시하고 있다.

# Java Class File Format

Class File의 Attribute 항목을 추가 예시로 살펴보자.



## 메타 데이터 정보

Constant Pool을 Pointing 하고 있다.  
따라서, pointing하는 Contant Pool에서  
Type에 대한정보를 얻을 수 있다.

## 실제 필요한 데이터 영역

더 많은 데이터가 필요하면  
Info가 증가한다.

