## 实验六

**实验要求：**请同学们熟悉sstable文件结构，根据footer找到index\_block，再根据index\_block输出data\_block。

**实验说明：**

sstable文件结构如下：

|  |  |  |  |
| --- | --- | --- | --- |
| Data\_block(n) | Meta\_block | Index\_block | Footer |

Data\_block文件结构如下：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data\_record(n) | Restart\_offset(n)  4bytes | Resart\_count  4bytes | Type\_Compression | CRC32 |

Data\_record结构如下：

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| key共享长度  (变长编码) | key非共享长度 + 8  (变长编码) | value长度  (变长编码) | key非共享内容 | value\_type + seq\_number  (8bytes) | Value |

Mete\_block结构如下：

|  |  |  |  |
| --- | --- | --- | --- |
| Restart(n)  4bytes | Resart\_count  4bytes | Type\_Compression | CRC32 |

Index\_block结构如下：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Index\_block\_record(n) | Restart(n)  4bytes | Resart\_count  4bytes | Type\_Compression | CRC32 |

Index\_block\_record结构如下：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Shared  (变长编码) | non\_shared  (变长编码) | Value\_length  (offset\_length+size\_length) | Limit\_key | value\_type+ seq\_number | Offset  (变长编码) | Size  (变长编码) |

Footer结构如下（48bytes）：

|  |  |  |  |
| --- | --- | --- | --- |
| Mete\_block\_handle | Index\_block\_handle | Padding | Magic\_number  （8bytes) |

Index\_block\_handle结构如下：

|  |  |
| --- | --- |
| Offset  (变长编码) | Size  (变长编码) |

**实验步骤：**

一、读取数据库中的.ldb文件，找到footer，读取index\_block\_handle，找到index\_block的偏移和大小；

二、根据index\_block的偏移和大小，找到index\_block，读取每一个block的limit\_key、偏移和大小；

三、根据block的偏移和大小，读取block里的每一条key、value、valuetype。