



DBASE

standard

standard

```
void add(int i, long long v);
```

$$0 \leq v < 2^{62}$$

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void add(int i, long long v);
```

$$0 \leq v < 2^{62}$$

```
void remove(int i, long long v);
```

$$v \in D \text{ or } v \notin D$$

standard

```
void add(int i, long long v);
```

$$0 \leq v < 2^{62}$$

```
void remove(int i, long long v);
```

$$v \in D \text{ or } v \notin D$$

```
bool member(int i, long long v);
```

non-standard

non-standard

long long pred();

long long succ();

the ~ of (1) inserted (2) queried (member(); pred(); succ())

return -1 if (1) no smaller/larger (2) has been deleted



non-standard

```
long long pred();
```

```
long long succ();
```

the ~ of (1) inserted (2) queried (member(); pred(); succ())

return -1 if (1) no smaller/larger (2) has been deleted

```
int range(int i, long long low, long long high);
```

$high - low \leq 100$

non-standard

```
long long pred();
```

```
long long succ();
```

the ~ of (1) inserted (2) queried (member(); pred(); succ())

return -1 if (1) no smaller/larger (2) has been deleted

```
int range(int i, long long low, long long high);
```

$high - low \leq 100$

```
void fork(int i);
```

10 times at most

number of operation:  $N = 2 \times 10^6$

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add  
 $\frac{N}{2}$

remove  
 $\frac{N}{6}$

member  
 $\frac{N}{9}$

pred, succ  
 $\frac{N}{6}$

range  
 $\frac{N}{18}$

fork  
 $\leq 10$

just give output. we provide simple IO function in C++

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ANY PROGRAMMING LANGUAGE, just give me a **static** binary

tell me in advance. and there's code review

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do not test memory leak. but there's a bound on maximal memory usage

