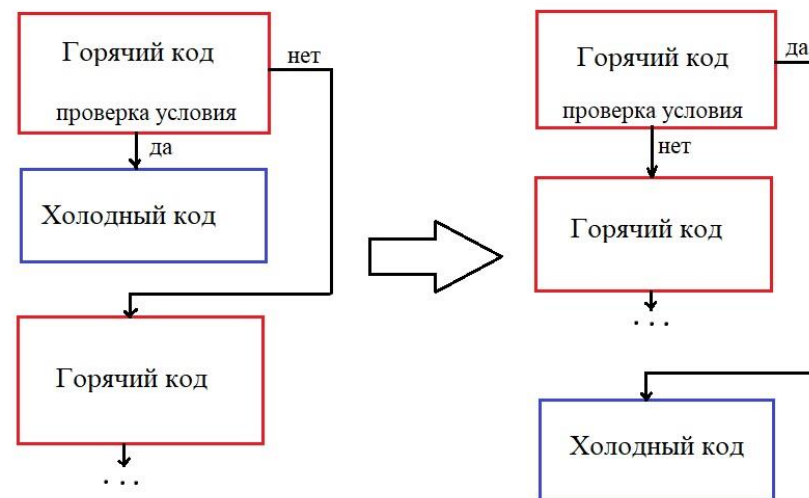
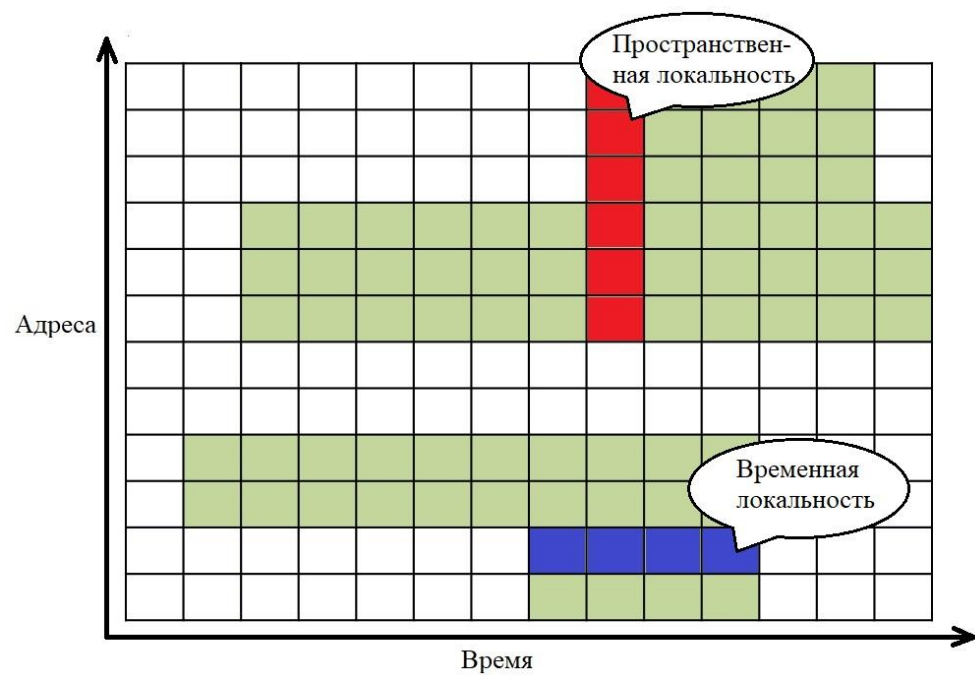


Отчёт о НИР

Студент группы 7304 Грибов А.В.

Локальность



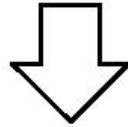
Оптимизация циклов

```
void func (struct S1* structS, int N) {  
    for (int i = 0; i < 40; i++)  
        structS[i].c = structS[i].a;  
}
```



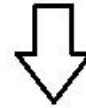
```
void func (struct S1* structS, int N) {  
    for (int i = 0; i < N; i += 4) {  
        structS[i].c = structS[i].a;  
        structS[i+1].c = structS[i+1].a;  
        structS[i+2].c = structS[i+2].a;  
        structS[i+3].c = structS[i+3].a;  
    }  
}
```

```
void func (int* a, int* b, int* c, int* d, int k, int N) {  
    for (int i = 1; i < N; i++) {  
        a[i] = a[i - 1] + b[i - 1];  
        b[i] = k * a[i];  
        c[i] = d[i-1] + 1;  
    }  
}
```



```
void func (int* a, int* b, int* c, int* d, int k, int N) {  
    for (int i = 1; i < N; i++) {  
        a[i] = a[i - 1] + b[i - 1];  
        b[i] = k * a[i];  
    }  
  
    for (int i = 1; i < N; i++) {  
        c[i] = d[i-1] + 1;  
    }  
}
```

```
void func(int* a, int* b, int* c, int k, int N) {  
    for (int i = 1; i < N; i++) {  
        a[i] = a[i - 1] + b[i - 1];  
    }  
  
    for (int i = 1; i < N; i++) {  
        c[i] = k * a[i];  
    }  
}
```



```
void func(int* a, int* b, int* c, int k, int N) {  
    for (int i = 1; i < N; i++) {  
        a[i] = a[i - 1] + b[i - 1];  
        c[i] = k * a[i];  
    }  
}
```

MPI

```
augiro@augiro-VirtualBox:~/MPI$ mpiexec -n 4 ./main
Process: 0, size: 4
Process: 3, size: 4
Process: 2, size: 4
Process: 1, size: 4
augiro@augiro-VirtualBox:~/MPI$ mpiexec -n 8 ./main
Process: 7, size: 8
Process: 0, size: 8
Process: 2, size: 8
Process: 4, size: 8
Process: 3, size: 8
Process: 5, size: 8
Process: 6, size: 8
Process: 1, size: 8
```

```
----- Programm information -----
>>> Processor: augiro-VirtualBox
>>> Num threads: 4
>>> Input the interval: 1 20
thread:0, intervals:1 , 5
Simple value ---> 1, THREAD:0
Simple value ---> 2, THREAD:0
Simple value ---> 3, THREAD:0
Simple value ---> 5, THREAD:0
thread:2, intervals:9 , 13
Simple value ---> 11, THREAD:2
Simple value ---> 13, THREAD:2
thread:3, intervals:13 , 17
Simple value ---> 13, THREAD:3
Simple value ---> 17, THREAD:3
thread:1, intervals:5 , 9
Simple value ---> 5, THREAD:1
Simple value ---> 7, THREAD:1
CPU Time: 1672131258.621958 ms
```