Тест1

```
init
help
g 30 30 10 10 200
g 50 50 15 15 200
g 80 80 25 25 200
g 30 20 25 25 200
g 20 30 10 10 200
g 50 0 10 10 200
g 60 60 10 10 200
g 90 80 10 10 200
g 0 0 10 10 200
g 70 40 10 10 200
generate
gnuplot
bmp_write
bin 240
k_means 6
k_means_kern 3
end
```
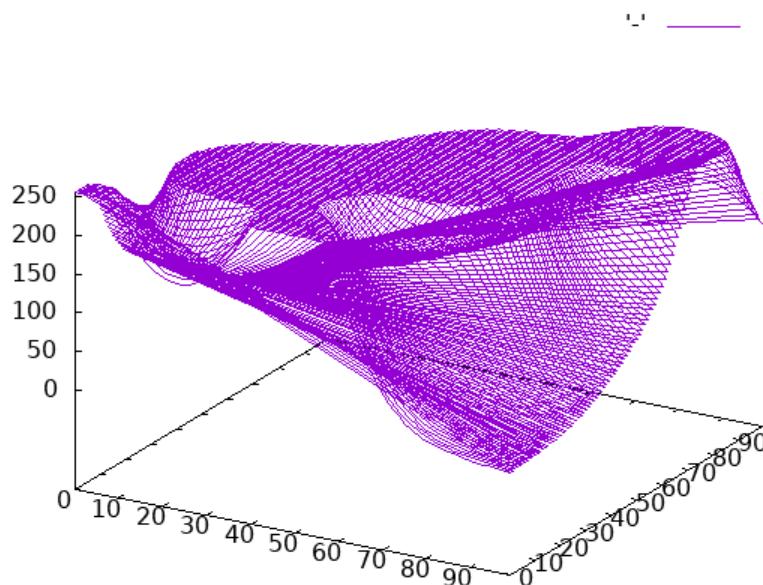

Логи контрол:

```
[2024-12-26 12:53:17] Logging Control is enabled.
[2024-12-26 12:53:25] init used: 100 x 100
[2024-12-26 12:53:25] g used: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=80.000000, y=80.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=30.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=20.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=50.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=60.000000, y=60.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=90.000000, y=80.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=0.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] g used: x=70.000000, y=40.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] generate used
[2024-12-26 12:53:25] gnuplot used
[2024-12-26 12:53:25] bmp_write used
[2024-12-26 12:53:25] bin used, slice=240
[2024-12-26 12:53:25] wave used
[2024-12-26 12:53:25] Component amount = 2
[2024-12-26 12:53:25] k_means used
```
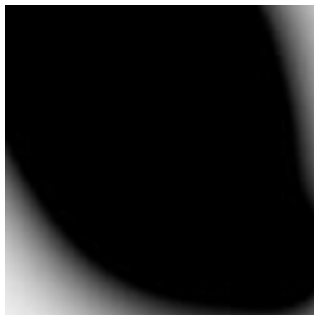
Логи интерфейс:

```
[2024-12-26 12:53:17] Logging Interface is enabled.
[2024-12-26 12:53:20] User chose input method: 0
[2024-12-26 12:53:25] Reading commands from file: test.txt
[2024-12-26 12:53:25] Received command: init
[2024-12-26 12:53:25] Initializing field with size: 100 x 100
[2024-12-26 12:53:25] Field initialized.
[2024-12-26 12:53:25] Received command: help
[2024-12-26 12:53:25] Help file created successfully.
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=80.000000, y=80.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=30.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=20.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=50.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=60.000000, y=60.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=90.000000, y=80.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=0.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: g
[2024-12-26 12:53:25] Adding Gaussian: x=70.000000, y=40.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:53:25] Received command: generate
[2024-12-26 12:53:25] Generated values in the field.
[2024-12-26 12:53:25] Received command: gnuplot
[2024-12-26 12:53:25] Called gnuplot: landscape.png
[2024-12-26 12:53:25] Received command: bmp_write
[2024-12-26 12:53:25] Created BMP file: output.bmp
[2024-12-26 12:53:25] Received command: bin
[2024-12-26 12:53:25] Slice applied: slice=240
[2024-12-26 12:53:25] Wave will be used
[2024-12-26 12:53:25] Component amount = 2
[2024-12-26 12:53:25] Received command: k_means
[2024-12-26 12:53:25] Cluster count
[2024-12-26 12:53:25] Received command: k_means_kern
[2024-12-26 12:53:25] Cluster kern worked
[2024-12-26 12:53:25] Received command: end
```

Гнуплот:

Тест2

```
init
help
g 30 30 10 10 200
g 50 50 15 15 200
g 80 80 25 25 200
g 30 20 25 25 200
g 20 30 10 10 200
g 50 0 10 10 200
g 60 60 10 10 200
g 90 80 10 10 200
g 0 0 10 10 200
g 70 40 10 10 200
g 40 20 25 25 200
g 50 20 25 25 200
g 40 20 25 25 200
g 40 30 15 25 200
g 40 10 25 25 200
g 50 60 25 25 200
g 50 50 25 25 200
generate
gnuplot
bmp_write
bin 220
k_means 2
k_means_kern 1
end
```
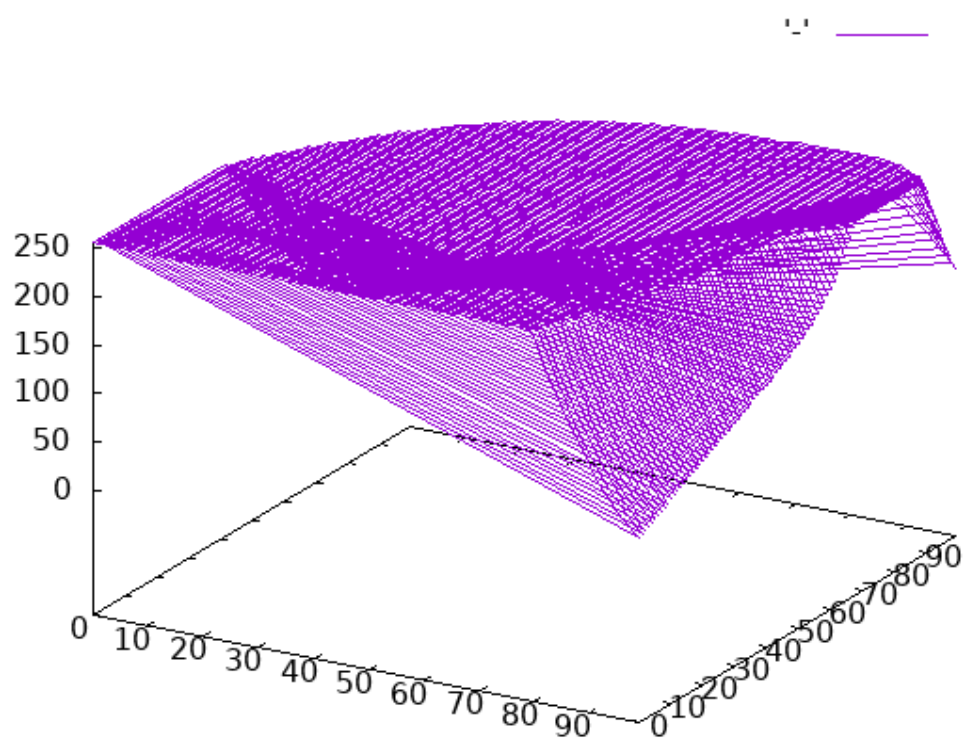
Логи контрол:

```
[2024-12-26 12:58:59] Logging Control is enabled.
[2024-12-26 12:59:05] init used: 100 x 100
[2024-12-26 12:59:05] g used: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=80.000000, y=80.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=30.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=20.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=50.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=60.000000, y=60.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=90.000000, y=80.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=0.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=70.000000, y=40.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=40.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=50.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=40.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=40.000000, y=30.000000, sx=15.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=40.000000, y=10.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=50.000000, y=60.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] g used: x=50.000000, y=50.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:59:05] generate used
[2024-12-26 12:59:05] gnuplot used
[2024-12-26 12:59:05] bmp_write used
[2024-12-26 12:59:05] bin used, slice=220
[2024-12-26 12:59:05] wave used
[2024-12-26 12:59:05] Component amount = 1
[2024-12-26 12:59:05] k_means used
```

Логи интерфейс:

```
[2024-12-26 12:56:40] Logging Interface is enabled.
[2024-12-26 12:56:47] User chose input method: 0
[2024-12-26 12:56:55] Reading commands from file: test.txt
[2024-12-26 12:56:55] Received command: init
[2024-12-26 12:56:55] Initializing field with size: 100 x 100
[2024-12-26 12:56:55] Field initialized.
[2024-12-26 12:56:55] Received command: help
[2024-12-26 12:56:55] Help file created successfully.
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=80.000000, y=80.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=20.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=50.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=60.000000, y=60.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=90.000000, y=80.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=0.000000, y=0.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=70.000000, y=40.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=40.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=50.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=60.000000, y=20.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=70.000000, y=20.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=90.000000, y=20.000000, sx=25.000000, sy=15.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=80.000000, y=20.000000, sx=24.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=30.000000, sx=14.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=40.000000, sx=25.000000, sy=20.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=50.000000, sx=18.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=60.000000, sx=25.000000, sy=17.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=70.000000, sx=15.000000, sy=25.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=80.000000, sx=5.000000, sy=15.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=90.000000, sx=2.000000, sy=2.000000, h=200.000000
[2024-12-26 12:56:55] Received command: g
[2024-12-26 12:56:55] Adding Gaussian: x=30.000000, y=20.000000, sx=5.000000, sy=5.000000, h=200.000000
[2024-12-26 12:56:55] Received command: generate
```
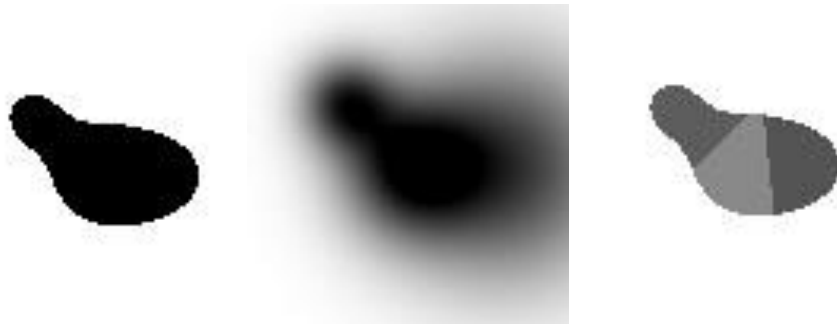
Гнуплот:

Тест3

```
init
help
g 30 30 10 10 200
g 50 50 15 15 200
g 80 50 25 25 200
generate
gnuplot
bmp_write
bin 210
k_means 4
k_means_kern 1
end
```


Логи контрол:

```
[2024-12-26 13:07:56] Logging Control is enabled.
[2024-12-26 13:08:01] init used: 100 x 100
[2024-12-26 13:08:01] g used: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 13:08:01] g used: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 13:08:01] g used: x=80.000000, y=50.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 13:08:01] generate used
[2024-12-26 13:08:01] gnuplot used
[2024-12-26 13:08:01] bmp_write used
[2024-12-26 13:08:01] bin used, slice=210
[2024-12-26 13:08:01] wave used
[2024-12-26 13:08:01] Component amount = 1
[2024-12-26 13:08:01] k_means used
```

Логи интерфайс:

```
[2024-12-26 13:07:56] Logging Interface is enabled.
[2024-12-26 13:07:58] User chose input method: 0
[2024-12-26 13:08:01] Reading commands from file: test.txt
[2024-12-26 13:08:01] Received command: init
[2024-12-26 13:08:01] Initializing field with size: 100 x 100
[2024-12-26 13:08:01] Field initialized.
[2024-12-26 13:08:01] Received command: help
[2024-12-26 13:08:01] Help file created successfully.
[2024-12-26 13:08:01] Received command: g
[2024-12-26 13:08:01] Adding Gaussian: x=30.000000, y=30.000000, sx=10.000000, sy=10.000000, h=200.000000
[2024-12-26 13:08:01] Received command: g
[2024-12-26 13:08:01] Adding Gaussian: x=50.000000, y=50.000000, sx=15.000000, sy=15.000000, h=200.000000
[2024-12-26 13:08:01] Received command: g
[2024-12-26 13:08:01] Adding Gaussian: x=80.000000, y=50.000000, sx=25.000000, sy=25.000000, h=200.000000
[2024-12-26 13:08:01] Received command: generate
[2024-12-26 13:08:01] Generated values in the field.
[2024-12-26 13:08:01] Received command: gnuplot
[2024-12-26 13:08:01] Called gnuplot: landscape.png
[2024-12-26 13:08:01] Received command: bmp_write
[2024-12-26 13:08:01] Created BMP file: output.bmp
[2024-12-26 13:08:01] Received command: bin
[2024-12-26 13:08:01] Slice applied: slice=210
[2024-12-26 13:08:01] Wave will be used
[2024-12-26 13:08:01] Component amount = 1
[2024-12-26 13:08:01] Received command: k_means
[2024-12-26 13:08:01] Cluster count
[2024-12-26 13:08:01] Received command: k_means_kern
[2024-12-26 13:08:01] Cluster kern worked
[2024-12-26 13:08:01] Received command: end
```

Гнуплот: