The program ‘Ballistic calculator’:

Main purpose of program where to discover ballistic corrections and control of human’s actions during calculation.

To implement this task next actions where realized:

1. Decomposition.
2. Subtasks.
3. Functions collecting.
4. Forming parameters list.
5. Algorithm.

1. Decomposition.

For implementation this program developer has to understand main principle of sniper shooting process. So that’s why where discovered many e-net materials and videos with needed information.

First issue was to decide problem of memory using. To optimize this obstacle were decided to use pointers and memory allocation.

Next step was to collect needed corrections for calculating and realize developing potential of program code, this correction responsible for max distance 1000 meters, but few new functions may prolong it up to around 1800 meters. There are at last 27 corrections types are knowing.

After that distance borders where chosen in field 100 – 1000 meters.

To implement ability of controlling used data, where decided to create file with its parameters of corrections which shooter does during his work.

All corrections where realized in figures for better understanding of using.

2. Subtasks.

During collecting of information main tables and conditions where used. So that helped to understand which kind of formulas will be represented in this program. Not all tables had its linear addiction, so it became another obstacle to fix.

As main distances for point gunner of battlefield starting from 100 to 800 – 1000 m. main corrections where collected into one list.

Secondary aim of development was to create wright form of incoming info for file to send to controlling officer. This option makes Ballistic calculator able to be studying program for boot camps.

Optimization of file in code become to be other task during the development process. This issue was main reason of 6 times rewriting code structure and operations =).

Result of this tortures – module structure of code, each correction parameter has its own function.

In case of fixed sight static massive were used because of nonlinear addiction of its data.

3. Functions collecting.

During code implementation and defining of main purposes next corrections where discovered:

1. Wind corrections
   Wind speed 2 – 4 – 8 m. per second
2. Movement corrections
   3 m per sec. – running infantry soldier, 5-6 vehicle, 8 – buggy.

3.Distance corrections.

4. Derivation of custom bullet

In case of distances increase 800 meters', derivation will consist half of figure width, 1000 meters - 1 figure.

5.Fixed sight corrections. (in case of old PSO which has fixators)

Table is nonlinear addicted.

Also:

5.PSO-grid where used as base for all corrections (according to UA Armed Forces standards).

6.Formula of thousand.

7.Naming is separated into outer function (because of memory allocation)

4.Forming reporting list.

Main conditions which point gunner have to use with his calculation are included in program code:

Data for weather conditions:

- Temperature
- +15 or -15 (Celsium)
- Wind speed
  mid values are 2 – 4 – 8 meters per second.
- Angle of wind blowing
  90 or 45

Data of target info:

- Distance.
  In meters.
- Heith of target.
  In meters.
- Thousands.
- Target speed
  Meters per second
- Angle of movement.
  45 – 90

For better, faster communication inside of code and better memory conditions where used structures and pointers. This structures announcing in two separated functions after this info collecting into file with name and callsign of shooter so officer who will check this incoming data will check needed info fast.

5.Algorithm.

At the top, under header files are defined constants which are using for in calculating formulas.

Announcing of two structures in global code field allows to get pointer for any function to use inputted data.

Next step – collecting of data.

Next – naming file.

Then program announcing reporting file.

Program check inputted distance and calculate derivation with its screening.

Then in "do while" cycle, program allows to calculate needed values while escape button will be pushed.