1. Сomparative table of the most common methodologies:

| № | Methodology | Strengths | Weaknesses | For which industry is it appropriate |
| --- | --- | --- | --- | --- |
| 1 | Waterfall | All requirements must be clearly stated and described, which provides a more predictable end result, budget and deadlines.  Easy to control. Focuses on a clearly defined set of steps. | Each stage of development begins only after the previous one is completed, with no possibility of going back. One of the principles of testing is early testing. In this methodology, testing only begins after development is complete, which incurs monetary and time costs. | This methodology is applicable to large projects with a long implementation period, such as medical, where the requirements are described in detail, it takes the longest period of time of all phases of development, but then accurately develops the project. |
| 2 | V-Model | At each stage of development testing is carried out, which minimizes the number of bugs and the release of a reliable product. | The speed of development is low, because at each stage testing is carried out. | Used for projects where reliability is important and the cost of error is very high, for managing the software development process, for the German Federal Administration. |
| 3 | Iterative/Incremental | Because of the development of basic functionality earlier we get mvp.  Since little functionality is being developed, there is little investment at the first stage and bugs are cheaper.  Reducing the scale of development contributes to the fact that small code is easier to test and get fewer defects. | No fixed budget or deadline for the development of a complete product.  Good planning and design is necessary to ensure the necessary functions and the possibility of making changes in the future. | Is used in web applications, where the functionality is constantly being improved. |
| 4 | Spiral | More attention is paid to the elaboration of risks.  Allows you to add additional functionality at any stage of development.  Continuous risk assessment and control makes overall project management as clear as possible. | There is a risk of getting stuck at the initial stage, constantly improving the first version of the product and not progressing to the next.  Risk assessment after each spiral is associated with high costs. | This model is suitable for large and complex projects, such as document management for banks, government projects or where it is necessary to consider risks in development, where the next step requires a lot of analysis |
| 5 | Agile | Involvement of all team members in the development process, which gives more motivation.  The ability to make changes at any stage of development, which makes the product more competitive.  Testing runs parallel to coding.  User experience research at all stages  Constant interaction with the customer. which shapes more specific objectives and customer satisfaction. | Because of the possibility of constant change, there is a threat of redoing much of the work done.  The decrease in the importance of the regulatory and technical documentation leads to the absence of a clear plan for the development of the project.  Reducing the quality of the product in favor of speed and simplifications. | It can be used in the development of various products, innovative technologies, in projects where it is not possible to foresee everything in advance. |

1. Agile manifesto.

The Agile manifesto was developed because all previous methodologies did not remove all the shortcomings. To improve the development process, make it more flexible, fast and productive. The Agile was created as a community of different approaches to software development.

The basis was to make a methodology that was more flexible than before.

The values of Agile are people, a working product, willingness to change, and cooperation with the customer.

For the process to be flexible and for people to work more efficiently, the process and tools should not limit them. They make their own decisions and are responsible for them. Employees see the demand for their work and the opportunities given to them for self-fulfillment. People with such intrinsic motivation cope with their work more effectively.

All team members collaboratively plan scripts, collaboratively demonstrate results, collaboratively search for problem solving and process improvement.

To keep the customer happy, they need the product to be able to use it much faster, and so developers should focus on the implementation of the product, not on making backlog, requirements and reports.

It is also important to get a product that fully satisfies the customer. Therefore, it is constantly necessary to interact with the customer, take into account all the wishes and changes that the customer wants to bring in the course of product development, not at the end, when the product has already been developed according to the original requirements. For example, the customer wanted a white background for the first page of the site, and a week later realized that yellow is better.

In this case, all changes and problems arising are promptly handled by both parties, so as not to postpone the risks.

All problems of flexibility of approach to development and interconnection of people were solved in the Agile Manifesto.

1. Mobile application for sharing photos of cats

To develop a mobile application for sharing photos of cats, I would apply an Iterative/Incremental methodologies.

I could have chosen the methodology of Agile, which is more flexible to change and interact with customers, but since it is a startup, just created a team, where there is no clear understanding of how people interact with each other, I decided to use a methodology with clearer requirements.

We focus on the product, because it's a mobile application, we create the basic functionality, we get feedback from the client or the user to understand whether they like the product or not and then continue to increase the functionality.

Also using this methodology, a minimum budget is needed at the initial stage.