Task 1.

Create a risk matrix for testing on a project (see given project description below)

Insurance company from USA builds a risk-assessment system for analytics team. Epam helps Team composition: 1 PM (B3 onsite), 1 BA (A2 onsite), 1 Key Dev (D3), 5 Devs (D1), 1 QA (L2), 1DQE (L1). Estimated project deadline is Mar 1, 2021 and is related to org changes in the customer Analytics team.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Probability\Severity | Critical | Major | Normal | Minor |
| Critical |  |  |  |  |
| High |  |  |  |  |
| Medium | 11 | 5,13,15 | 2,14 |  |
| Low | 4 | 1,8,12 | 3,6,7,9 | 10 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Risk | Probability | Severity | Mitigation | Mitigation description |
| 1 | Scope change for the particular phase​ | Low | Major | consequences minimization | It is necessary to analyze the changed scope in a short time |
| 2 | Lack of resources​ | Medium | Normal | extra resources | It is necessary to expand the number of resources. |
| 3 | Poor team communication increases the time for regression testing. | Low | Normal | consequences minimization | It is necessary to arrange a meeting to determine the problem in communication. |
| 4 | Bad data to test | Low | Critical | risk delegation | The customer must validate the data and provide the correct dataset. |
| 5 | QA and DQE may miss the deadline because too many bugs will be found. | Medium | Major | extra resources | Additionally, take on a temporary position of a new employee |
| 6 | QA is on sick leave | Low | Normal | extra resources | Additional resources are needed to complete tasks on time. |
| 7 | DQE is on sick leave | Low | Normal | extra resources | Additional resources are needed to complete tasks on time. |
| 8 | Delays in development schedule​ | Low | Major | extra resources | Additional resources are needed to complete tasks on time. |
| 9 | Perhaps A1 level DQE will need the help of a supervisor to solve more difficult tasks. | Low | Normal | extra resources | Additional resources are needed to complete tasks on time. |
| 10 | Misunderstanding of requirements by QA and DQE | Low | Minor | consequences minimization | It is necessary to arrange a meeting to determine the problem in communication. |
| 11 | Unavailability of test infrastructure | Medium | Critical | extra resources | It is necessary to have redundant resources to ensure continuous operation. |
| 12 | Access to some third-party system could be lost or limited | Low | Major | extra resources | It is necessary to have redundant resources to ensure continuous operation. |
| 13 | Requirements changes during a work | Medium | Major | consequences minimization | It is necessary to analyze the changed requirements in a short time |
| 14 | One environment for development and testing | Medium | Normal | accept risk | Need to share resources between dev and qa team. |
| 15 | Too much manual testing, which slows down performance over time. | Medium | Major | extra resources | Additional resources are needed to complete tasks on time. |

Task 2.

You have issue tracker log / export file. “bond\_issue\_log.zip”

Please create metrics answering these questions:

1. What is the least reliable component of the system?

For each module, we will display a graph showing how many bugs were found in total (depending on priority). To calculate, we introduce weights for priorities. A bug with a high priority will have a high weight, and a bug with a low priority will have a low weight:

|  |  |
| --- | --- |
| Severity | Weight |
| critical | 1 |
| high | 0.5 |
| normal | 0.25 |
| low | 0.125 |
| tiny | 0.0625 |

Chart

Description automatically generated

And the summary chart:A picture containing bar chart

Description automatically generated

We get that the most problematic module is 'C', in which the sum of the weights of all bugs is maximum.

1. Is the situation improving over timeline?

Let's display a graph that shows the sum of bug weights by week.

Chart, line chart

Description automatically generated

Here we can see that by week 31 the total number of bugs has dropped, but towards the end of the project it started to grow again.

1. What weeks were the most dynamic in testing/development?

Based on the calculations (which are given in the attached file Menegement.ipynb), the most dynamic week was number 39 (growth dynamics 7.75 points). Rachsets were performed as follows: from the sum of the weights of the current week, subtract the sum of the weights of the previous week. Then we choose the maximum difference. This will be the indicator of the maximum growth dynamics.

1. What weeks were the most silent?

The quietest week was number 31 (growth dynamics -10.1875 points). It was calculated similarly to the previous indicator, only the minimum value was taken.

1. Suggest a threshold for bug quantity per week (take into consideration their severity)

Calculate the average number of bugs per week, based on the priority weights. We get the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| severity | weight\_by\_week | weight\_source | number\_of\_bugs\_per\_week |
| critical | 6.586207 | 1 | 7 |
| high | 10.568966 | 0.5 | 22 |
| normal | 5.215517 | 0.25 | 21 |
| low | 1.077586 | 0.125 | 9 |
| tiny | 0.553879 | 0.0625 | 9 |

The total average number of bugs per week will be 68.