Deliverable 3.2

Evaluation material

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Summary

Introduction

This report is in connection with D1.2. First Technology Report, and it has to be read in correlation with.

In this second stage of the project, we aimed to evaluate the basic technology for implementing the solution within the pilot group. All design activities were iterated several times to take into account the results of the previous step.

In this second stage of the project NOT ALONE AT HOME, the Transilvania University of Brasov partner (with the acronym UNITBV), as it appears in the project, had to perform the following activities for the year 2017:

- Activity II.2. Designing homogeneous databases
- Activity II.4. Installing pilot equipment and conducting preliminary tests
- Activity II.5. Installing and running services to the pilot and providing support

The expected results were:

- Test dataset
- Installation, training, and monitoring report
- Activity and performance review report

The achievement degree of the results is evaluated at 100%.

Scientific and technical description

This report presents the activities that have been carried out to meet the 2017 targets.

Running these activities, the expected results proposed in the project were obtained, and they are also presented in this report (after describing each activity separately).

All the activities will be described in detail below.

Activity II.2. Designing homogeneous databases

For testing, the Synthetic Tests panel can be used. Within this panel, one can create, edit, delete, and view synthetic tests that monitor the performance and availability of applications. The tests are displayed in a list or in a card view in the Synthetic Tests panel. Each test card displays test information:

- Availability displays the percentage of test availability in the last 24 hours.
- Status displays the current test status. The status can be Critical, Warning, Normal, Failed, Inactive or Unknown.
- Avg ("Average time"). The result displays the average response time of the test in the last 24 hours.
- Three different types of tests can be monitored:
- REST API tests the response time of a REST (REpresentational State Transfer) call. All HTTP requests such as GET, POST, PUT and DELETE are supported.
- Webpage tests report the response time for uploading the site to the address being entered.
- Scripted behavior tests monitor the Selenium scripts that are created to mimic a user's interaction with a website. For example, one can create a Selenium script that mimics a user who connects to the application. This script runs periodically to test the performance of the application in response to user actions that are automated by the script. One can load a script or add an existing script to a warehouse (for example, GitHub).

The results of this activity were: Test dataset.

Activity II.4. Installing pilot equipment and conducting preliminary tests

This activity implied that a number of other preparatory activities should be carried out in advance. These activities are presented in the following.

The first activity was presented in the D1.2. First Technology Report

The second preliminary activity was the selection of the participants in the project (the pilot target group in the Brasov area). The activity took place together with the Brasov Social Services Directorate and was carried out throughout the year 2017 - in order to select the most suitable persons that are under the care of SSD. After a series of meetings where the selection principles were discussed, a pilot group was selected, which was additionally tested using professional tests - to assess the level of skills in everyday activities for people over 65 years of age. Preliminary tests were performed using the ABAS II instrument. This investigation was carried out through a multitude of sources - a questionnaire addressed to the main subject, to his family and to the social worker - and was individually completed. The areas of daily competences investigated are: communication, use of community resources, functional learning habits, family life, health and safety, leisure, self-care, self-direction, social skills. Depending on these results, the NOAH project team can bring significant improvements

at individual level according to profile specificity, by determining individual strengths and/or weaknesses. The points highlighted by the team, based on the interpretation of the results in the form, will be discussed with the person being evaluated and with the caregiver in order to improve them or to maintain the raised ones at a constant level. The integration of this evaluation into the project aims to objectively influence the behaviour of people over the age of 65 and to improve those areas that can make their daily lives easier. The results of this activity are presented in the Installation, training, and monitoring report.

The results of this activity was: Installation, training, and monitoring report.

Activity II.5. Installing and running services to the pilot and providing support

Running the software services at the pilot group in Brasov. At this stage, it was chosen to directly install (as APK) the dedicated Android application sets.

Verification of compliance on commissioning is heuristically planned through evaluation:

- under normal operating conditions (taking into account roles/tasks - specific maneuvers corresponding to each category of users in the work scenarios) as well as
- under network congestion or
- under partial connectivity.

Pre-configuration of access privileges ("bootloading" - "superuse") in "pre-rooting" and of control privileges was done at the optimal levels that do not expose the entire Android system, but allow only the unlocking of the special resources needed for the apps set.

The results of this activity was: Activity and Performance Review Report.

Stage results: parameters and performance

As a result of carrying out the above activities, the following documents were developed:

- Test dataset
- Installation, training and monitoring report
- Activity and Performance Review Report

These results will be presented below.

1.   Test dataset

To perform non-stop simulated performance tests in locations around the world, we can use the IBM Cloud Availability Monitoring option. This service detects, isolates, and proactively diagnoses performance issues before affecting users. We check that applications are available and they meet the expected response times when continuous updates are released. In this sense we'll configure data collectors for applications to collect user data. These data will be used in the IBM Cloud Availability Monitoring service to monitor the response capability as well as the overall behavior of the developed applications. The IBM Cloud Availability Monitoring dashboard displays information about the availability and response time of monitored URLs as well as the APIs used in the selected IBM Cloud Region (for example, IT). The dashboard is used to monitor alerts and application-related activities in different locations using graphs, tables, and maps.

This service has the following features that make up the test dataset:

- Starting in less than 5 minutes. Monitoring features, such as automatic availability test configuration, can be used independently of the application regardless of its geographic location.
- Maximizing user response time and user satisfaction. This feature monitors running application time and response time every minute in different geographic locations. Synthetic tests are run in order to measure Web site upload performance as well as API calls. We monitor the Selenium scripts that are used to mime the streams from users from different geographical locations. At the same time, filters can be used to see which dependencies and resources affect the response time of the tested Web applications.
- Proactivity. Messages or SMS notifications are received if problems occur before they affect users. In this sense, we can use the Alert Notification service to create alert policies to reduce the possibility of erroneous alerts.
- Isolation of implementation problems. This feature helps isolate problems caused by code implementation. It is possible to analyze the factors that contribute to response time, availability and alerts in correlation.
- Identify with accuracy and speed the reasons why defects have occurred. Cascade analysis helps to accurately identify when a malfunction has occurred and why it has occurred (for example, broken links, oversized images, slow searches, or external requests). Screen captures are automatically generated to help diagnose browser failures and historical performance issues. Monthly, weekly or daily availability reports as well as test response time averages can be downloaded.

- Monitor real user satisfaction. We test how satisfied the user is with the response time of applications. We can compare the levels of satisfaction with the result of the developed applications. Data collectors are configured to put together data used by applications

2. Installation, training, and monitoring report

The first activity within the project in this direction was to identify the level of skills necessary for the person's actual environment. This activity was carried out on the basis of the ABAS II standard. The ABAS II test offers the ability to assess the level of skills in everyday activities for people over the age of 65. Integrating this evaluation into the project aims to objectively influence the behavior of people over the age of 65 and to improve those daily areas that can make their lives easier.

The arguments for using the ABAS II questionnaire are:

- using a questionnaire standardized for the population of Romania in order to evaluate the user satisfaction analysis of life;
- ensuring that users do not suffer from major depression, that they are open to modern communication techniques (mobile phones, tablets) that they can go through and finish the project, are open to the new, perform social activities;
- can be used successfully at the beginning and at the end of the project - can be used in research - have objective character through validity and fidelity

The goal of ABAS II is to evaluate the adaptive skills that are needed for an individual to work efficiently in several areas:

- history of the evaluated persons
- examination of existing documents
- interview with close people.

Test users may include family members, social workers, or other contacts who are well aware of the day-to-day activities of the person who wants to be evaluated. People with a high level of performance can complete the individual form, which follows:

- assessing the adaptive skills of a person and his ability to live independently;
- identification of strengths and limits;
- documenting and monitoring progress.

The evaluation form will be completed in an organized framework under the supervision of the test user or a person with specialized studies in this sense.

Before completing the form:

- information for valid and appropriate completion of the answers in the form will be provided
- indication and explanation of the meaning of the questions and the place of completion of the answers will be given
- the instructions will be discussed, answering any questions from the respondents form return information will be provided.
- Statistical information on the first investigation: we evaluated 14 older people in Romania aged between 68 and 79, average 73.3 years, standard deviation 3.73.
- The results showed that three of the assessed individuals should improve their conceptual, practical and social outcomes. Example:
  o person I: should improve the use of community resources and self-direction.
  o person II: should improve his spare time use.

3. Activity and Performance Review Report

To analyze performance, a summary of the statistics for the types of entities, relationship types and correlated references was reviewed. We also analyzed the statistics that are presented in an error matrix. The error matrix helps compare metadata of annotations added via an annotation tool. Statistical methods have proven to be an effective way of addressing performance problems, but automated learning techniques often work better when algorithms are equipped with indicators that mark what is relevant to a data set. When we talk about natural language, these indications often come in the form of annotations metadata that provide additional text information. An annotation tool made available by the IBM Bluemix platform has been used to provide the following metrics:

- F1 score. By using this metric, both accuracy and recovery for calculating the score are taken into account. The F1 score can be interpreted as a weighted average of the precision and recovery values, where the F1 score has the best value at 1 and the worst at 0.
- Precision. Specific precision is the fraction of the result of the annotation tool that was the most accurate compared to human interpretations. Accuracy is determined by the number of annotations correctly labeled, divided by the total number of annotations added by the annotation tool. A precision score of 1.0 for the A entity means that each entry that has been labeled as Entity type A really belongs to that classification. The low precision score helps identify where the annotation tool created invalid annotations.

- Recall. By using this metric, we specify how many mentions that should have been annotated by a particular label were actually annotated with that label. Recovery is determined by the number of annotations correctly labeled, divided by the number of annotations that should have been created. A 1.0 recovery score means that each entry that should have been labeled as a type A entity has been correctly labeled. A low recovery score helps identify where the machine's annotation tool failed to create an annotation it should have.
- Percentage of total annotations. This measure helps identify the number of words that have been annotated with a particular type of entity or relationship type of the total number of words, annotated or not.
- Percentage of documents that contain the type. This measurement is designed to show how many documents contain an entity type or a given relationship type. The value obtained helps to see if the documents in the set are sufficiently good for the target field. If the percentage is low for the types of key entities, then it may be necessary to add more documents.

In the case of the specific two-step piloting, this first evaluation does not benefit from large data volumes ("big data") that highlight the capability of "cloud data analytics" (for generating customized behavioral models – using the artificial intelligence). At the same time, although all the basic functionalities as well as the cloud collection, transmission, storage and processing capabilities have been activated, load & stress load statistics are not yet sufficient.

Conclusion

All the activities outlined above in the report were conducted in such a way that the results were fully met.

Activity II.2. Designing homogeneous databases has been fully realized.

As a result of this activity was elaborated:

- Test dataset - degree of accomplishment, 100%.

Activity II.4. Installing pilot equipment and conducting preliminary tests, has been fully realized.

As a result of this activity was elaborated:

- Installation, training, and monitoring report - degree of accomplishment, 100%.

Activity II.5. Installing and running services to the pilot and providing support, has been fully realized.

As a result of this activity was elaborated:

- Activity and Performance Review Report - degree of accomplishment, 100%.

The objective, proposed at the beginning of the report and assumed through the NOAH project, was 100% accomplished.

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