



## Assessment of Innovation Form

**ID and Title of the Project:** T2410, Diabetaid

**Team Member IDs:** 22003595, 22003508, 22102677, 22103838, 22103071

**Name of the Supervisor:** Dr. Deniz Katircioğlu Öztürk

*Below questions needs to be filled by the Innovation Expert*

*Considering the definition of innovation as “creation of better or more effective products, systems, services, or technologies that have the potential to be accepted by markets, governments, and society”, please assess the innovativeness of the design project with below questions.*

### 1) The project and subject that is proposed and presented to you is:

Criteria	Poor	Unsatisfactory	Satisfactory	Good	Outstanding
Technically feasible:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
You see enough market demand:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Development planning is done well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Enough research done for marketplace and competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Delivers enough value or solves a real problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 2) What is the nature of the innovation you see in this project? Do you have any suggestion to improve converting the knowledge and idea of the subject more into benefit and value?

Diabetes is one of the most common chronic diseases in the world. Conventionally, the disease has been treated under distinct typologies and mostly handled with regulating medication and insulin therapies. Type 1 diabetes requires immediate and lifelong insulin therapy, as the body cannot produce insulin. Type 2, on the other hand, is often initially managed with lifestyle changes and oral medications, with insulin being added if necessary. Though being only for a limited amount of time, gestational diabetes is typically managed with diet and exercise, but may require insulin during pregnancy. In all cases, regular blood glucose monitoring and “personalized” care are critical to preventing complications. This project focuses on recommending the most appropriate treatment method for a novel patient using ML algorithms based on retrospective diabetes data. The goal is to offer the most “effective” treatment (a.k.a “personalized”) options according to the patient’s past medical



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data. Recently, personalized approaches are almost purely based on -omics data. Acquiring, curating or handling -omics data is quite challenging. However, on a large-scale, baseline and follow-up clinical data can present a form of “optimization” to the existing and predefined guidelines for treatments. This paves the way for a more “*gradual elaborative*” approach to present options for patients, although we cannot call it “*fully personalized*”. The most prominent aspect of innovation would arise from using the real-life supervised retrospective dataset including CBC’s, procedures, treatments and physician notes of 6500 unique patients admitted with diabetes at different times. Furthermore, the healthcare facility in this scope is one of the leading tertiary hospitals in Ankara. It is envisaged that the integrity and quality of the data will be top level.

To improve the scope, a spectrum of pertinent supervised techniques should be considered, and ensemble learning should be tested.

**3) Are there any unaddressed risks that team members need to consider during implementation?**

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There is a possibility of data imbalance in the patient cohort. For this, pre-processing for balancing or synthetic data generation should be considered.

**4) Any suggestions while shaping go to market strategy?**

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The projected product can be, later, specialized for multimorbid subgroups of diabetes patients using extra clinical data and instances. This would create an effective market segmentation.

**Innovation Expert**

**Name:** Dr. Deniz KATIRCIOGLU OZTURK

**Date:** 06/10/2024

**Signature:**

**Final Expert Score 5 (out of 5)**

*Scale:*

*(1) Poor, (2) Unsatisfactory, (3) Satisfactory, (4) Good, (5) Outstanding*