Conception of analysis personal data and making the recommendations

At first, based on the personal information (obtained with the smartwatch and user profile) it is possible to define **3** groups of users: with **low risk** of different pathological conditions, with **middle level of risks** and with the **high level of risks**.

These groups are formed based on: gender, ages, bad habits, physical activity, and body mass index.
Descriptions of these groups are presented on the table below.

| Group of risk | Low | Middle | High |
|---|---|---|---|
| Description | Gender: male, female; Ages: less or equals 45; Bad habits: none; Physical activity: normal or high level; Body mass index: 18.5 – 24.9 | Gender: male, female; Ages: if there are no bad habits, the ages are in range from 46 to 60 years. In case of bad habits existence, the ages are in range from 30 to 50 years. Physical activity: normal or low level. Body mass index: less than 18.5 and from 25 to 30. | Gender: male, female Ages: if user has no bad habits and his body mass index is from 18.5 to 24.9, the ages are from 60 and older. Main case of most diseases is the age of user. In case of bad habits existence, ages are in range from 50 and older. In case of high body mass index (more than 25) ages are in rage from 50 and older. In case of body mass index more than 25, also user has bad habits, the ages are in range from 45 and older. Physical activity low level. |

These groups are possible to make in the way of implementing **classification method**.

Next step - considering this classification, as well as real-time data on the pulse and air pollution - to generate the personal recommendations.

| Group of risk | Level of pulse | Possible personal recommendations | Recommendations based on pollution level | Color |
|---|---|---|---|---|
| low | low | This level is normal for user, because he has a high or normal level of physical activity and when he does not make a physical activity he has a low heart rate. | There are no recommendations | Green |
| | middle | that user has a normal physical activity or he's a stress. Advice in this case: your health condition is OK. | | Yellow |
| | high | user does sport? Check the value of lost calories:<br>• not 0 or not low, so user does sport and the high pulse rate is normal.<br>• is low or 0 - check his temperature and health and mental condition.<br>If the pulse rate is continuing to be high, we advise user to check his health condition more detailed. In other case, we advise to user to visit a doctor. | if the pollution level has the middle or high values, in this case the recommendation is to be careful. | Yellow or Green (in case of sport actions) |

| | | | | |
|---|---|---|---|---|
| | low | be careful and drink some coffee or strong tea to normalize heart rate. | | Yellow |
| | middle | = OK. But because of user is on the middle group of risk, we can advise him to control his health condition. | | Green |
| middle | high | The recommendation is to be careful, because there is the risk of a hypertenstion. Also, user may have a high temperature, so he should check temperature of his body. If this condition with high heart rate is not on the first time, the recommendation is to visit a doctor and be more careful for his health. | In case when the pollution level is high, we advise user to be at home and more careful. | Red |
| High (By default, system should advise them to change their life style to normalize health condition) , if the body mass index is high, we can advise user to visit a doctor, because he | high | There is a 95% chance that user has a hypertension | In case of high pollution level, system should advise them to be careful and recommended to be at home. | Red |

| may have a sugar diabet | | | | |
|---|---|---|---|---|
| | low | be careful and drink some coffee or strong tea to normalize heart rate. | to be careful and recommended to be at home. | Red |