**Problem Specification**

This report is to analysis the problems relating the current diagnoses process. Looking into if technology could aid the process in making diagnoses more informed having information and potentially earlier than without this aid. This will be achieved by identifying key problems and finding suitable solutions. Also exploring and comparing different approaches to discover which would be the most effective solution.

With the larger demand for practices are now facing because of population growth and cuts the notion of a family doctors, which would have extensive knowledge of their patients’ medical history, is rear now. Likewise, if a patient cannot always visit there family doctor this means that GP they are seeing can only base there diagnosis on current evidence and even though they can access past medical records they are likely not to without being given reason. So with the current system patient’s symptoms that could potently point to an underlying illness could be overlooked. As they are either visiting a doctors who is not similar enough with their past as they have too many patients to see and could be seeing them too infrequently to be able to see the patterns emerging or because the practitioner has never meet the patient before.

Realising early that seemly minor symptoms could be hinting to more serious illness than suspected when symptoms are analysed in isolation to each other. Since certain diseases are difficult to diagnose as they show very few symptom or the illness develops slowly over a long period of time as a result can more easily go unnoticed. As seeing the patterns emerging while an illness is in its early stages could greatly improve a patients chances. So a symptom checker which would record and monitor patient’s’ notes could potentially lower this risk.

There are symptom checkers currently on the market however they rely on the practitioner having prior knowledge of past illness/symptoms and manually writing them out into the symptom checker so they can be analysed, to see if they match the symptoms of other illness or diseases. Although these programs are powerful and can compare symptoms against the known symptoms of other diseases. This approach can be problematic as it assumes that the practitioner has this prior knowledge of their patient. Also if he or she perceives these has illness/ symptoms as trivial and not requiring further inquiries than there is the risk that serious illness could potentially go unnoticed and illustrates how they checkers faulted by personal judgement.

To combat this problem a software application will records and analysis symptoms mentioned by doctors in the patients notes. This means that even if a practitioner deems something to be too minor to me meaning full information which could prove to be crucial when further reviewed. Also to combat the problem of the doctor being unware of past symptoms which could relate to current illness the checker would be simultaneously checking the patients’ medical background against there current symptoms.

Since the software would be taking the information from the patient’s notes instead of having a keyword selection all information will be analysed eliminating personal judgement from the process. This means that the problem of whether or not a he or she deems something to be important or not, would not affect the diagnose software, as everything would still be taken into account. This software application could step in as the transitional family doctor as instead of the patients’ doctor needing incentive knowledge of their medical background the system would be simultaneously recording and analysing the information processed. This would be a great benefit to the application process as if a doctor was new to a certain patient they may not be a aware of their medical records without further research however with this software in place they would be alerted immediately if current and past symptoms were pointing to an underlying illness.

The information gathered for the recording and monitoring software would be displayed through a dashboard interface. The interface for this system would need to clear and professional looking with the ability to grab the user’s attention without alerting the patient unnecessarily. This could be achieved in a number of methods as the dashboard display which symptoms link to which illness could be displayed on the main page. So as the doctor were taking their notes and evaluating the current situation they would be able to take past information into account. However this could be distracting especially if the symptoms do not strongly link to an illness. Also the patient may see this display which could be alerting to them. So there could be the option to have alert icon appear when the match from symptoms to illness is significant enough to warrant it. When selected this icon could allow the professional user to see the dashboard showing which symptoms match which illness and when a symptom on this dashboard is selected the professional user is able to read through the notes for that particular symptom. This will permit quick and easy access to past records and give the doctor a better view of how these symptoms link together. As the aim of this dashboard is not tell the doctor what to do instead advise them on certain possibilities and provide them with the information needed. Also even if the user would be able to view this dashboard at any time, even before the match reached a specific level of certainty. Although there is no need to re-invent the wheel and create a new surgery system for doctors when they already has a functioning surgery system currently. It would be useful to have a prototype dashboard which would be able to connect with current surgery system software to demonstrate a test environment for the recording and monitoring dashboard. This would achieved by using Java interface development software such as JavaFX which can access information from an test environment and is able to display the information accordingly.

In conclusion, from this analysis the diagnoses process a recording and monitoring system could greatly improve how informed consultants are of their patients’ medical history which will allow them to make a more informed decision. Than if they were to base their diagnosis purely on current information on the patient. The focus of the design is to create an alert system which gets the attention of the professional user however does not alarm the patient. So the warning needs to be subtle but effective.