

Health screening for chronic diseases and cancer

% of Singapore residents

Who participated in chronic disease screening



▼7.1%

Sources: NATIONAL POPULATION HEALTH SURVEY 2021, MINISTRY OF HEALTH
STRAITS TIMES GRAPHICS

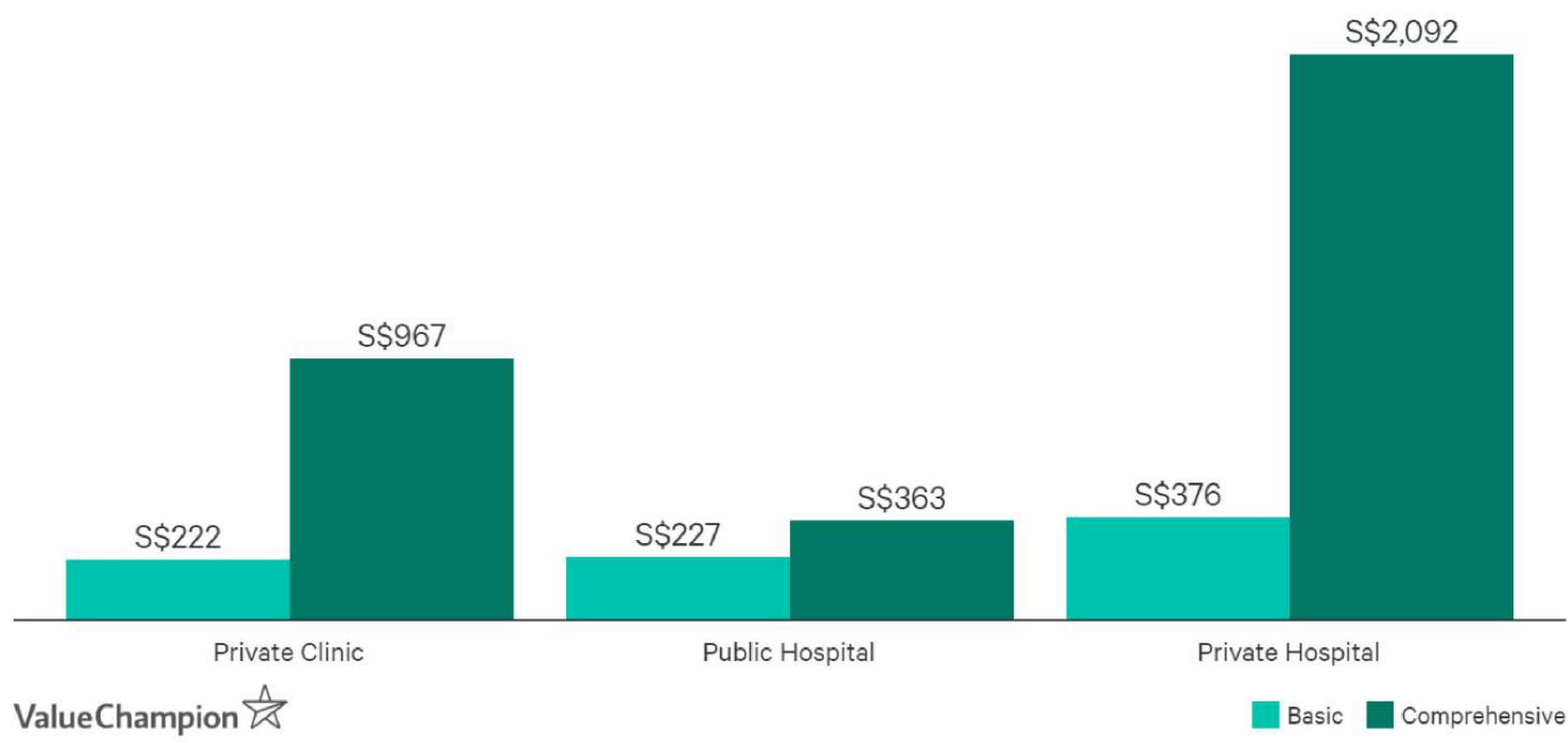
Current Problems

- On average, 34 people have heart attacks daily in Singapore.
- 1 in 3 Singaporeans may have underlying heart diseases that remain undetected.
- Key issues: Decreasing rate of health screening, failure of early detection

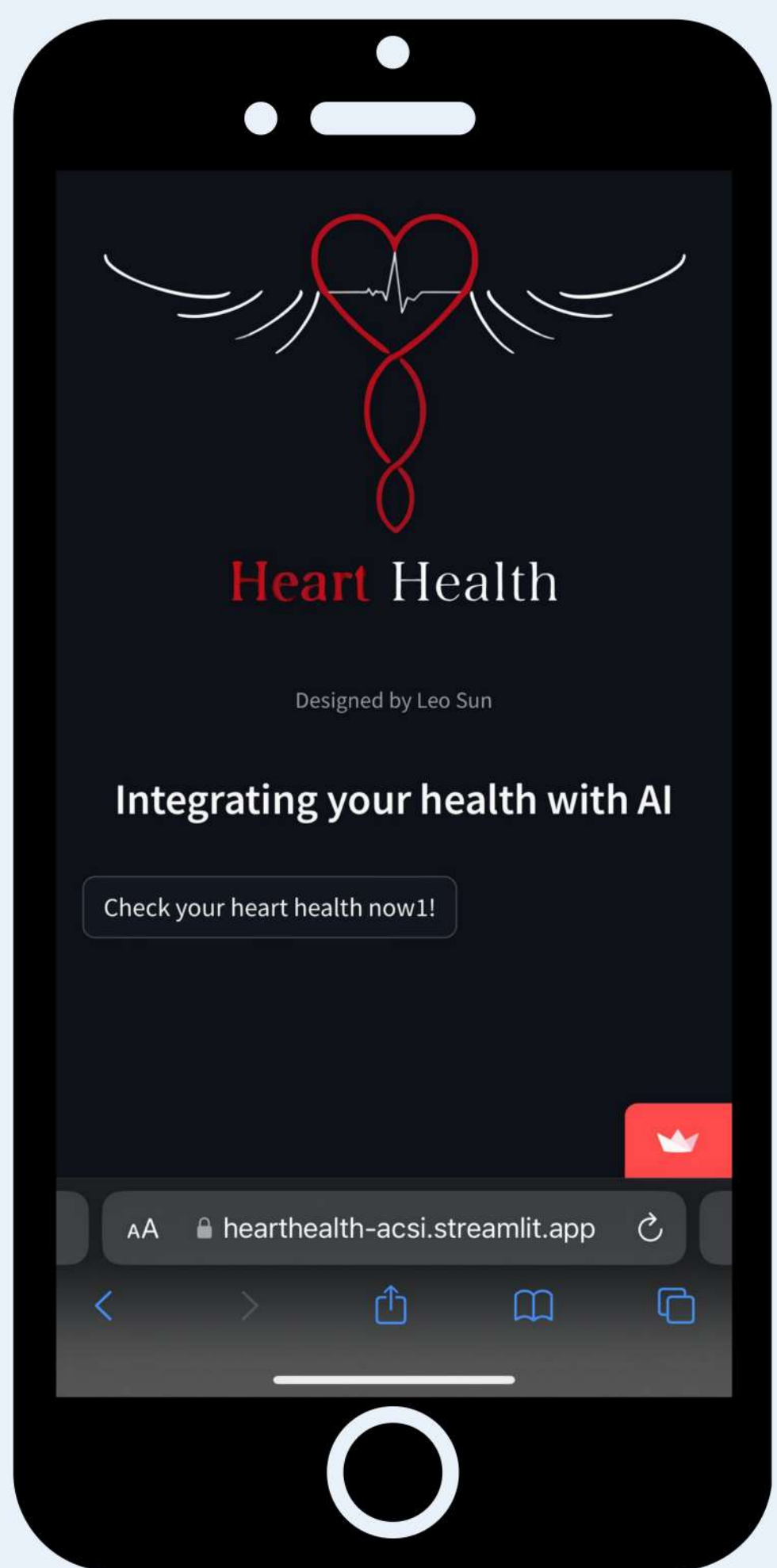
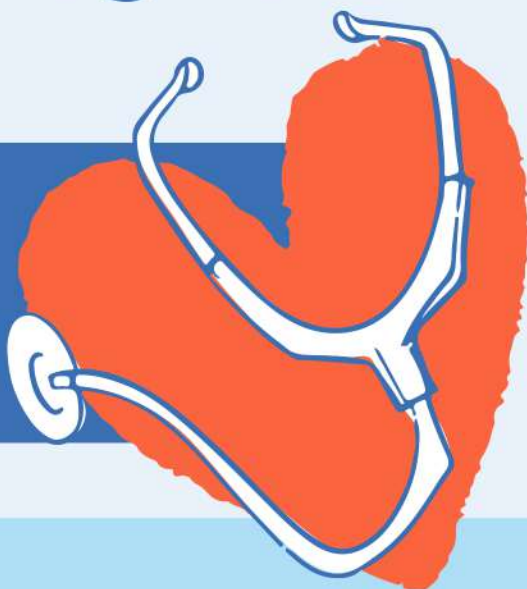
- Health Initiatives (Healthier SG) to encourage older adults (57-76 years old) to go for regular health check-ups and exercise
 - SMU's Research on Successful Ageing (ROSA) shows 46% unaware of HSG
- ECG, CT or MRI Scans
 - Too expensive/inaccessible (See right)
 - 1 in 4 Singaporeans do not follow up health screenings
 - Unwillingness/Lack of caregivers

Current Solutions

Average Cost of Health Screenings in Singapore (Basic vs. Comprehensive)
Prices include GST



Our Innovation



A website with questions about your lifestyle to determine your vulnerability to heart attacks, backed by analysis driven by machine learning on real life data

You just need to answer:

17 questions on your lifestyles (BMI, Family History, Habits etc.)

The website will generate:

1. Percentage Risk of Heart Attack
2. "Clusters" of people with similar lifestyles you belong to
3. Advice according to results (e.g. See healthcare providers)
4. Statistics on your "cluster" / group

About the Data and Accuracy



- Use of Machine Learning/Artificial Intelligence
 - 6 patients were chosen as the reference points of each group following extensive experimentation. Model determined which of these reference point best matches the remaining patients, following which they are sorted into the 6 unique groups
 - This enables the government to more easily identify trends among the users of our website
 - Random Forest Classification enables us to incorporate many factors into each decision made by the model by introducing randomness during training. This leads to robust models capable of handling large datasets with many features.
- Data taken from individuals from Mexico, Peru and Colombia
 - Similar to ongoing efforts such as Singapore's project RESET of screening 10,000 Singaporeans
 - Cross-confirmation from medical students

Scalability and Impact



1. 95% accuracy of analysis and categorisation

- a. We aim for this to be the first detection measure in place for Singaporeans
- b. Though not perfect, we reduce the number of people who have undetected heart diseases through an accessible website
- c. This can also be expanded to other countries to supplement their healthcare system

