**Testing**

To develop our application, we will need to go through a variety of tests ranging from in-house to real world users. After we have developed our first edition of our application in Android Studio, we will need to pass some real-world tests before allowing it to go live to a selection of human testers. Android Studio will supply us with the environment to not only create our application but also to test it on the fly. Emulation has become a huge part of application development, so we plan to use AS (Android Studios) software emulation tool to push our application to the limits. AS emulation tool allows us to review our work in real time, checking over our code to make sure it has been applied correctly and works within our application, this will be incredibly useful when adding additional features to avoid code clashes. Once we are happy with our base product we must then move onto refining and debugging, fortunately this will be completely achievable in AS. Within AS we will be able to use synthetic workloads to simulate average to heavy workloads. This will give us an idea of how our application will run under pressure, which in an ideal world would be flawless, but realistically this will be met with challenges. When exposing our app to workloads that may be unrealistic, we will see bugs that will need debugging. The bugs could be caused by bad code, bad assets or simply just restrictions in the engine. This will trial us in our ability to read and rewrite code, which is a test of our own knowledge that will improve along production.

Once we are happy with our application, we plan to release it as a beta test to a select number of participants. Our ideal participants will be those who the app is designed for. Firstly, we will need to find several new parents who have seen a decline in their physical activities since the birth of their child. Another demographic we will need to find is people who do not feel motivated to work out, as these are the people we are seeking to support. Once we have worked out which demographic we would like to test on, we will need to find a solution on how to gain access to those people. We will do this by using the “snowballing” technique. We would first use the powers of social media to promote our testing. This would require funding assistance to advertise our product to locate potential testers but would hopefully become self-sufficient after the first few hundred tests. In our test form we would include the option to share the test to family and friends, that would hopefully result in the “Snowball” event. For example, one person could do the test and share it with their family of 4, that family of 4 could then share it with their friends, which could provide us with upwards of 20 testers who would then share and could then repeat the cycle, hopefully infinitely.

With 25 million Australians, 67% of those being considered as overweight or obese (Australian Bureau of Statistics 2018), we would be targeting around 16-17 million people with our final product. To figure out the number of testers we need for accuracy, SurveyMonkey (2022) suggests taking the square root of your sample size and dividing it into your population standard deviation, then multiplying the result by the z-score with your confidence level. A population of 16 million requires a sample size of 1,068 people resulting in a 3% margin of error with a 95% confidence level. For our overweight and obese population to achieve a 3% Margin of error with 99% confidence level, we would need 1,849 participants in our tests. A margin of error of 3% may not give us all the information we desire so we would personally be aiming for a participant rate of 16,624 Australians, giving us a goal of a 1% margin of error with 99% confidence level. During the creation of this application, we will be using these trial-and-error tactics to test our app in its multiple stages. Using our own stress testing and debugging in its initial stages to using the Australian population to see what we can improve on and what errors we may have overlooked. The end goal will be to have an application that is good for the wellbeing of all that use and is also designed around what they want in an application like ours.

Australian Bureau of Statistics 2018, *Overweight and obesity, 2017-18 financial year,* Australian Bureau of Statistics, viewed 8 February 2022, < <https://www.abs.gov.au/statistics/health/health-conditions-and-risks/overweight-and-obesity/2017-18>>.

SurveyMonkey 2022, *Sample size calculator,* Momentive AI, viewed 08 February 2022, < <https://www.surveymonkey.com/mp/sample-size-calculator/>>.