

Case Study: Investment Choices of Alex and Priya

Alex and Priya, both 25 years old, each receive a £5,000 inheritance. They want to invest this money to grow their wealth over the next 20 years, but they choose different types of investments based on their risk tolerance and goals.

- **Alex** decides to invest the entire £5,000 in a **high-yield savings account** that offers a **2% annual interest rate, compounded monthly**. He likes the idea of a low-risk option where he won't have to worry about losing money, even if the returns are modest.
- **Priya** decides to invest her £5,000 in a **diversified stock index fund**, which has historically offered an average return of **7% per year**. She understands that stock market investments can fluctuate, but she is willing to take on more risk in exchange for potentially higher returns.

Twenty years later, they compare the results of their investments.

Questions:

1. **Calculate the future value of Alex's investment after 20 years in the high-yield savings account at a 2% interest rate.**
2. **Calculate the future value of Priya's investment after 20 years with a 7% average annual return.**
3. **Who has a higher final balance, and by approximately how much?**
4. **What are the risks and benefits associated with Priya's choice of a stock index fund compared to Alex's savings account?**
5. **If Alex wants to reach a higher final balance, what changes could he consider making to his investment strategy?**