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**ORIGINAL ARTICLE**

## Are Artificial Intelligence-Prescribed Exercise Programs Valid for General Health and Weight Loss?

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**Abstract:** This study aims to examine the validity of prescribed AI-generated exercise interventions for general health and weight loss. This study developed an AI-generated exercise program using the Delphi method. The Delphi process involved administering a structured questionnaire within the relevant domain, whereby a panel of experts evaluated the appropriateness of the program. To assess validity, three established measures were employed: the Content Validity Ratio (CVR), the Content Validity Index (CVI), and the Impact Score (IS). In addition, the Fleiss' Kappa coefficient ( $\kappa$ ) was calculated to determine the degree of agreement (reliability) among the experts. All statistical analyses were conducted using SPSS software version 27 and Microsoft Excel. The IS indicates that all exercises achieved the required level of validity. Also, based on the CVI and CVR, all exercises demonstrated acceptable content validity for general health and weight loss. However, the negative kappa value suggests poor agreement among the experts for the mentioned variables. Findings indicate that while platforms such as ChatGPT-4o can produce broadly



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appropriate exercise content, expert agreement on the validity of these protocols was very low. Accordingly, AI should be viewed as a supplementary tool that can assist in designing individualized health and weight management programs.

**Keywords:** CVI, CVR, AI generated program, ChatGPT-40, Weight Management Program

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## Introduction

The rise of artificial intelligence (AI) in healthcare provides new possibilities for personalized health management (Canzone et al., 2025a), with AI-based fitness applications becoming more common and facilitating opportunities for individualized exercise prescription (Canzone et al., 2025b; Mohan et al., 2020). AI-driven exercise prescription, using neural networks and logistic regression, tailors training programs to user needs and is expanding in the fitness domain (Masagca, 2024). Although the use of new technologies is associated with sedentary behavior (Gordon-Larsen et al., 2004), AI has now emerged as a promising tool to overcome barriers, offering innovative and personalized solutions to meet the individual needs of those who use it (Rosa, 2025). Furthermore, findings from previous studies indicate that AI has been effective in promoting physical activity among various populations, including children, adolescents, adults, and the elderly (Salamati et al., 2025), and individuals with disabilities (Ebrahimi et al., 2024). Moreover, the use of artificial intelligence can be crucial in public health. In a systematic review of the use of chatbots for healthcare applications, Xu et al. describe integrating these elements into clinical practice, such as weight loss and general, equipping healthcare workers with a valuable resource (Xu et al., 2021). According to the World Health Organization (WHO), overweight and obesity have emerged as major global public health challenges, reaching epidemic proportions (Organization, 2022). Dietary habits, physical activity levels, genetics, environmental exposures, and socioeconomic status all contribute to their development (Waxman, 2004; Zhang et al., 2017). Exercise serves as an integral part of weight management programs, particularly for weight maintenance, with activities like walking, running, and cycling being most effective for reducing body fat (Jagsz & Sikora, 2025; Petridou et al., 2019). Evidence from studies applying AI for weight loss and physical activity prescription indicates that AI can facilitate food recognition, eating behavior assessment, physical activity monitoring, and energy balance estimation (Chew, 2022), while also enhancing weight loss prediction, intervention adherence, and activity levels (Chew et al., 2021; Oh et al., 2021). Additionally, lack of physical activity is a leading modifiable factor driving the global burden of disease (Liu et al., 2025). It is linked to conditions such as cardiovascular disease, type 2 diabetes, several forms of cancer, depression, and early death (Xu et al., 2022). According to the WHO, more than five million deaths each year can be traced to insufficient activity, placing it among the most pressing public health issues of this century (Santos et al., 2023). To counter these risks, adults are advised to engage in 150 to 300 minutes of moderate-intensity aerobic activity each week and include muscle-strengthening workouts on at least two days (Brellenthin et al., 2022). Regarding public health, considerable efforts have been directed toward implementing AI in clinical practice. Park et al. (2020) reported that AI-based public health technologies demonstrated remarkable performance in accurately

diagnosing and classifying patient conditions, as well as predicting disease trajectories from aggregated medical data (Park et al., 2020).

Despite growing interest in AI-driven exercise prescription, current research remains confined to specific musculoskeletal outcomes. For instance, a recent study validated AI-generated programs for improving Upper Crossed Syndrome and Dynamic Knee Valgus, demonstrating that AI can produce clinically plausible exercise plans (Sheikh Hoseini et al., 2025). Prior studies have not explicitly addressed the extent to which these AI-designed programs are valid and effective in achieving these outcomes, nor have they evaluated whether AI can generate evidence-based, high-quality training plans tailored to such health-related variables. Therefore, the current study is presented as a validation pilot, aimed at testing the feasibility and preliminary validity of AI-generated exercise prescriptions for general health and weight management. The present study addresses this gap by applying established content validation approaches, Content Validity Ratio (CVR), Content Validity Index (CVI), and Impact Scores (IS). It should be considered that this represents one of the first attempts to employ such methods in the context of AI-prescribed exercise prescription.

### **Materials and Methods**

The study focused on creating an AI-generated exercise program designed for general health and weight loss, employing the Delphi method for validation. This method involves circulating a structured questionnaire within a specialized domain, allowing a panel of experts to evaluate the appropriateness and relevance of the program. The research panel included physiotherapists with at least five years of clinical experience, university faculty members specializing in rehabilitation and corrective exercise with documented academic contributions, exercise physiology experts, and certified sports science coaches. A statistician and a research methodology specialist with extensive experience in applied studies also contributed. The study was approved by the Ethics Committee of Allameh Tabataba'i University (Code: IR/ethics.2024.81200.1143), and the participants gave written informed consent.

Three methods were used to determine validity: Content validity ratio (CVR), content validity index (CVI), and Impact Score (IS). Ten experts in corrective exercise and sports injuries, who were university professors, were asked to choose one of three options to determine the CVR: a) Necessary, b) Helpful but not necessary, and c) Necessary for each question or item. According to Lawshe's table (Romero Jeldres et al., 2023), if the score obtained for each question is more significant than 0.62 (based on evaluations from ten experts), it suggests that the question is essential to be included in the tool with an acceptable level of significance. Ten experts were asked to evaluate each question's CVI, relevance, clarity, simplicity, and ambiguity using a 4-point Likert scale. One way to assess the relationship between two items is by using a scale of 1 to 4. The options are "no relation", "somewhat related", "good relation", and "very high relation". CVI was calculated as the percentage of items with agreeable points (ranks 3 and 4) among the total voters. The CVI score required for item acceptance was higher than 0.79 (Romero Jeldres et al., 2023). Moreover, IS was used to assess each item's importance and relevance based on expert consensus. Ten experts were asked to rate each exercise or component of the protocol on a 5-point Likert scale ranging from 1 (not important) to 5 (very important). The impact score for each item was calculated using the following formula:  $IS = \text{Frequency (\%)} \times \text{Importance (mean score)}$ . An  $IS \geq 1.5$  was considered acceptable and indicative of

satisfactory face validity, as per established psychometric validation guidelines (Zamanzadeh et al., 2015). This approach ensured that only exercises deemed both clinically relevant and contextually appropriate by the expert panel were retained in the final protocol.

Additionally, the Fleiss Kappa coefficient ( $g$ ) was calculated to assess the degree of agreement (reliability) between the experts' responses. The interpretation of this coefficient was based on the following criteria (Fleiss et al., 2013): (a)  $g \leq 0.4$ : weak or poor reliability; (b)  $0.4 < g \leq 0.6$ : moderate reliability; (c)  $0.6 < g \leq 0.8$ : good reliability and, (d)  $g > 0.8$ : excellent reliability.

**Participants and Sampling.** Moreover, two Iranian participants were assessed in this study, one for general health (age: 22 years, weight: 65kg, and height: 185cm) and the other for weight loss (age: 60 years, weight: 90kg, and height: 162cm). Inclusion criteria were adults aged 18–65 years, Free from acute or uncontrolled chronic illnesses, completion of the PAR-Q (Physical Activity Readiness Questionnaire), Body Mass Index (BMI)  $\geq 25$  kg/m<sup>2</sup>, and not having any musculoskeletal injuries (past 6 months). Exclusion criteria included neurological conditions, recent acute musculoskeletal discomfort, lower limb or spinal surgical history, or any other condition that would make it unsafe to participate in functional tests. Furthermore, all assessments were conducted by a qualified specialist with relevant professional experience.

**General Health Assessment.** General health was evaluated using the Physical Activity Readiness Questionnaire (PAR-Q), a widely used and clinically validated screening tool designed to identify individuals who may be at risk of adverse events during physical activity (Venkataraman et al., 2024). The PAR-Q consists of a series of structured questions addressing cardiovascular, musculoskeletal, and other health conditions that could contraindicate exercise participation. The participant completed the questionnaire before beginning the study, and responses were reviewed to ensure safety for engagement in the AI-prescribed exercise program. Individuals reporting positive responses indicating potential risk were flagged for further medical evaluation before participation. This assessment provided an objective and standardized method to confirm the participant's suitability for exercise and established a baseline for monitoring health outcomes throughout the intervention.

**Obesity Assessment.** Obesity status was evaluated using BMI, a clinically validated and widely used anthropometric indicator of excess body weight relative to height (Khanna et al., 2022). The Participant's weight was measured using a calibrated digital scale, and height was recorded with a stadiometer; BMI was then calculated as weight in kilograms divided by height in meters squared (kg/m<sup>2</sup>). A BMI  $\geq 30$  kg/m<sup>2</sup> was used to classify the participant as obese, in accordance with WHO guidelines. This objective measurement provided a standardized baseline for identifying participants with obesity and for monitoring potential changes in body composition following the AI-prescribed exercise intervention.

**Intervention/Procedures.** Following the initial assessment and identification of the participants, an 8-week exercise protocol was designed using ChatGPT-4o. Specific, evidence-based prompts, grounded in exercise science, public health guidelines, and weight management principles, were used to generate a personalized training regimen aimed at improving overall health and weight loss. Moreover, to ensure the clarity, relevance, and consistency of the AI-generated content used in this study, we utilized the Originality. AI

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Prompt Generator for crafting each prompt. This tool was employed to systematically generate prompts used for analysis, content creation, and communication within the study framework.

*The prompt of General Health:* You're a seasoned fitness coach with over 15 years of experience in designing personalized workout programs based on the FITT principles (Frequency, Intensity, Time, and Type). You specialize in creating effective and sustainable fitness plans that cater to individual needs and goals, ensuring optimal results while considering the client's current physical condition and lifestyle. Your task is to write an 8-week general health (fitness) program for a student. Here are the details to consider: - Age: 22 - Weight: 65 kg - Height: 185 cm - Current Activity Level: No special physical activity - Body Type: mesomorph. Please ensure that the program incorporates the FITT principles effectively and includes a variety of exercises to maintain motivation and engagement throughout the 8 weeks. Include considerations for progression and recovery, and highlight any important factors that the student should keep in mind while following the program (Supplementary file 1).

*The prompt of Weight Loss:* You're a certified fitness coach and nutritionist with over 15 years of experience in creating personalized weight loss programs for diverse clients. Your specialty lies in developing safe and effective plans that cater to individual health conditions and lifestyle factors while emphasizing the FITT principles (Frequency, Intensity, Time, and Type) for optimal results. - Age: 60 - Weight: 90 kg - Height: 162 cm - Job: Housewife - Special considerations: Pain in knees and Osteoarthritis, history of back pain (healed), no signs of blood pressure issues, Fasting Blood Sugar: 100 mmol/L (Supplementary file 1).

**Data analysis.** To calculate the level of agreement among experts, Fleiss' Kappa coefficient was used. In addition, to assess the validity of the exercises, three key indices were employed: CVR, CVI, and IS. Data analysis was performed using SPSS version 27 and Microsoft Excel version 2024.

## **Results**

According to Table 1, the IS indicates that all exercises possess the required level of validity. Also, based on the CVI and CVR, all exercises demonstrated acceptable content validity. Additionally, the Fleiss' Kappa coefficient for expert agreement on the entire set of exercises was -0.16, with a 95% confidence interval ranging from -0.038 to 0.014 (Table 2). This negative kappa value suggests poor agreement among the experts, indicating that their evaluations may not be consistent beyond a chance level.

**Table 1. Validity of weight loss exercises**

<i>Exercises</i>	<i>IS</i>	<i>CVI</i>	<i>CVR</i>
1	3.9	0.8	0.9
2	4.1	1.2	0.8
3	4.2	0.9	0.8
4	4.1	1.1	0.8
5	4	1	0.9
6	3.8	1.3	0.9
7	4.5	0.9	0.9
8	4.3	0.8	0.8
9	4.4	0.9	0.7
10	4	0.9	1.2
11	3.7	0.8	1.3
12	3.5	1.1	0.8
13	3.4	0.8	1.1
14	3.1	1.2	0.9
15	2.4	1.3	0.8
16	3.2	1.1	0.8
17	3.3	0.9	0.9
18	4.5	1.3	1.5

**IS>1.5, CVR => 0.62, CVI => 0.79, IS Impact Score, CVR Content Validity Ratio, CVI Content Validity Index**

**Table 2. Fleiss' Kappa Coefficient for weight loss**

Confidence Interval		Fleiss' Kappa
Upper Bound	Lower Bound	
0.14	-0.038	-0.12

**$g \leq 0.4$ : weak or poor reliability;  $0.4 < g \leq 0.6$ : moderate reliability;  $0.6 < g \leq 0.8$ : good reliability and,  $g > 0.8$ : excellent reliability**

According to Table 3, the IS indicates that all exercises possess the required level of validity. Also, based on the CVI and CVR, all exercises demonstrated acceptable content validity. Additionally, the Fleiss' Kappa coefficient for expert agreement on the entire set of exercises was -0.16, with a 95% confidence interval ranging from -0.050 to 0.017 (Table 4). This negative kappa value suggests poor agreement among the experts, indicating that their evaluations may not be consistent beyond a chance level.

**Table 3. Validity of general health exercises**

<i>Exercises</i>	<i>IS</i>	<i>CVI</i>	<i>CVR</i>
1	4.1	0.9	0.8
2	4.4	1.3	0.9
3	4.4	0.8	0.7
4	3.1	1.2	0.9
5	4.7	1.3	0.9
6	4.8	1.4	0.8
7	4.8	0.8	0.9
8	4.7	0.9	0.9
9	4.5	0.9	0.8

**IS>1.5, CVR => 0.62, CVI => 0.79, IS Impact Score, CVR Content Validity Ratio, CVI Content Validity Index**

**Table 4. Fleiss' Kappa Coefficient for general health**

Confidence Interval		Fleiss' Kappa
Upper Bound	Lower Bound	
0.017	-0.050	-0.15

**$g \leq 0.4$ : weak or poor reliability;  $0.4 < g \leq 0.6$ : moderate reliability;  $0.6 < g \leq 0.8$ : good reliability and,  $g > 0.8$ : excellent reliability**

## Discussion

Leveraging AI to design exercise programs represents an emerging and innovative approach, valued for its ability to scale interventions and adapt to individual needs. In this study, ChatGPT-4o was employed to generate personalized, 8-week exercise programs aimed at improving general health and promoting weight loss. These programs were structured using the FITT principles to ensure systematic progression and adherence to current public health and exercise science guidelines. Evaluations by domain experts using content validity measures (including CVR, CVI, and IS) indicated that the AI-generated exercises were generally relevant and appropriate; however, consensus among experts was low, highlighting substantial variability in judgments despite the overall quality of the program. This suggests that, although AI can generate plausible exercise recommendations, expert oversight remains necessary to refine and ensure the clinical applicability of these programs.

Prior research supports the potential of AI in health-focused exercise prescription. For example, studies investigating AI-generated fitness and calisthenics programs have shown improvements in health-related physical fitness components, though professionally designed interventions were sometimes superior in certain measures (Dergaa et al., 2024; Masagca, 2025). Similarly, AI-based programs for balance, core stability, and functional movement in specialized populations have demonstrated efficacy when combined with expert supervision (Ebrahimi et al., 2024; Salamati et al., 2025). These findings highlight that AI can

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produce theoretically sound, evidence-informed exercise content; however, human oversight is essential to ensure safety, contextual appropriateness, and individualized progression (Washif et al., 2024). The AI-generated programs adhered to FITT principles and included commonly recommended exercises for health and weight management. This likely involved a combination of moderate-intensity aerobic activity, resistance training to improve muscular strength and endurance, and flexibility exercises to support functional movement and injury prevention. Prior work has shown that structured AI-assisted exercise protocols can serve as effective tools for improving cardiovascular health, metabolic outcomes, and body composition, particularly when tailored to individual anthropometrics and baseline fitness levels (Muse & Topol, 2024; Nasb et al., 2025)

One of the most concerning outcomes of this study was the poor reliability among experts, as reflected in Fleiss' Kappa coefficient. This negative value implies that the agreement among reviewers was worse than random chance. This could result from multiple factors: variability in expert backgrounds (e.g., physiotherapy, biomechanics, sports coaching), ambiguities or inconsistencies in the AI-generated content, and differences in interpretative criteria for what constitutes a "valid" exercise program. Moreover, to improve reliability in future studies, methodological refinements are recommended. These include calibration meetings prior to independent scoring, consensus-building exercises, and the use of standardized evaluation rubrics to reduce ambiguity and enhance inter-rater agreement. The use of AI platforms like ChatGPT-4o may accelerate the development of first-draft rehabilitation protocols, reduce planning time for clinicians, and allow for mass customization (Neha et al., 2024). However, validation mechanisms such as CVR and CVI, as employed here, are essential before any AI-generated program can be adopted clinically.

### **Limitations and Suggestions**

AI lacks the experiential judgment and contextual understanding required to account for complex factors such as specific pathologies, comorbidities, stages of recovery, or an individual's readiness and psychosocial context. Consequently, AI should be regarded not as a replacement for human expertise, but as a supportive tool that can generate initial exercise plans, which must then be refined and adapted by clinicians. This hybrid approach enables healthcare professionals to leverage the efficiency and scalability of AI while maintaining the necessary oversight to ensure safety and individualized care. The study's main limitations include the small sample size ( $n = 2$  participants) and the absence of follow-up data on actual health outcomes. Additionally, the small expert panel ( $n = 10$ ) likely contributed to variability in validation indices. Moreover, using ChatGPT-4o with structured prompts may introduce potential bias, as the quality and content of the generated exercise plans are dependent on the skill of prompt design. Finally, although multiple validation metrics were employed (CVR, CVI, IS), the observed poor inter-rater agreement diminishes confidence in the reported results. Due to these limitations, the findings cannot be generalized to larger populations, and the study should be considered a preliminary validation pilot rather than an effectiveness trial.

## Conclusions

This study represents an initial effort to explore the validity of AI-generated exercise programs for promoting general health and supporting weight loss. The findings indicate that while platforms such as ChatGPT-4o can produce broadly appropriate exercise content, there remains considerable variability in expert agreement with established validity standards. Accordingly, AI should be viewed as a supplementary tool that can assist in designing individualized health and weight management programs, rather than as a standalone solution, with professional oversight remaining essential for safe and effective implementation.

## Declarations

### *Authors' contribution*

EE, RS, RE, and HP contributed to the study design and data collection. RS and EE drafted the manuscript and made critical revisions. All authors read and approved the final manuscript.

### *Conflict of Interest*

All authors have no conflict of interest to declare.

### *Ethical Considerations*

The study was approved by the Ethics Committee of Allameh Tabataba'i University (Code: IR/ethics.2024.81200.1143), and all participants gave written informed consent. Participants were also explicitly informed of their right to withdraw from the study at any time without any penalty or loss of benefits. The authors confirm that all methods followed the relevant guidelines and regulations.

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This research was funded by Allameh Tabataba'i University as part of an approved research project. All expenses related to the study were covered by the university.

### *Availability of Data and Materials*

The data that support the findings of this study are available on request from the corresponding author.

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## Appendix

### Weight Loss Protocols

#### Prompt

You're a certified fitness coach and nutritionist with over 15 years of experience in creating personalized weight loss programs for diverse clients. Your specialty lies in developing safe and effective plans that cater to individual health conditions and lifestyle factors while emphasizing the FITT principles (Frequency, Intensity, Time, and Type) for optimal results.

Your task is to write an 8-week weight loss program for a woman. Here are her details:

- Age: 60
- Weight: 90 kg
- Height: 162 cm
- Job: Housewife
- Special considerations: Pain in knees and Osteoarthritis, history of back pain (healed), no signs of blood pressure issues, Fasting Blood Sugar: 100 mmol/L

Keep in mind that the program should focus on low-impact exercises that accommodate her knee pain and overall health, incorporating balanced nutrition guidelines to support her weight loss goals. Please provide a breakdown of the weekly plan, including specific exercises, duration, and modifications for her conditions.

### \*\*8-Week Weight Loss Program for a 60-Year-Old Woman with Osteoarthritis and Knee Pain\*\*

#### ### **\*\*General Principles:** \*\*

- **\*\*Low-Impact Movement\*\*:** All exercises will be low-impact to reduce stress on the knees and avoid exacerbating osteoarthritis. These exercises also help minimize the risk of injury while allowing her to burn calories and lose weight.
- **\*\*Strengthening Muscles\*\*:** Strengthening the muscles surrounding the knee, hips, and core will help support the joints and improve function, reducing the pain associated with osteoarthritis.
- **\*\*Focus on Nutrition\*\*:** Balanced meals with a focus on whole, anti-inflammatory foods that support healthy blood sugar levels and fat loss.
- **\*\*Rest and Recovery\*\*:** Adequate rest, stretching, and proper hydration are essential for recovery and to prevent overuse injuries.

#### ### **\*\*Week 1-2: Foundation Phase – Building Strength & Mobility\*\***

##### **\*\*1. Walking (or Stationary Bike) \*\***

- **\*\*Duration\*\*:** 10-20 minutes, 2-3 days per week
- **\*\*Intensity\*\*:** Slow to moderate pace (aim for a comfortable pace, where speaking is still possible)
- **\*\*Modification\*\*:** If walking outdoors is painful, use a stationary bike or recumbent bike for a gentler movement that does not strain the knees.

**Mark your level according to the exercise**

<b>Totally disagree</b> 1	<b>Strongly disagree</b> 2	<b>Disagree</b> 3	<b>Neither agree nor disagree</b> 4	<b>Agree</b> 5	<b>Strongly agree</b> 6	<b>Totally agree</b> 7
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**Do you have suggestions for this exercise?**

**\*\*2. Seated Leg Extensions (Knee Strengthening) \*\***

- **\*\*Target\*\***: Quadriceps, knee joint stabilization
- **\*\*How to Perform\*\***: Sit in a sturdy chair with feet flat on the floor. Slowly extend one leg straight in front of you, hold for 1-2 seconds, and lower back down. Repeat on both legs.
- **\*\*Reps\*\***: 2 sets of 10-12 reps per leg
- **\*\*Modification\*\***: Start with very light resistance (e.g., bodyweight only) to avoid stressing the knee joint.

**Mark your level according to the exercise:**

<b>Totally disagree</b> 1	<b>Strongly disagree</b> 2	<b>Disagree</b> 3	<b>Neither agree nor disagree</b> 4	<b>Agree</b> 5	<b>Strongly agree</b> 6	<b>Totally agree</b> 7
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**Do you have suggestions for this exercise?**

**\*\*3. Wall Push-ups (Upper Body Strength) \*\***

- **\*\*Target\*\***: Chest, arms, shoulders
- **\*\*How to Perform\*\***: Stand facing a wall with feet about 2 feet away. Place hands on the wall, shoulder-width apart. Slowly bend your elbows and lower your chest toward the wall, then press back up.
- **\*\*Reps\*\***: 2 sets of 10-12 reps
- **\*\*Modification\*\***: Keep the body in a straight line, and avoid arching the lower back.

**Mark your level according to the exercise:**

<b>Totally disagree</b> 1	<b>Strongly disagree</b> 2	<b>Disagree</b> 3	<b>Neither agree nor disagree</b> 4	<b>Agree</b> 5	<b>Strongly agree</b> 6	<b>Totally agree</b> 7
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**Do you have suggestions for this exercise?**

**\*\*4. Glute Bridges\*\***

- **\*\*Target\*\***: Glutes, lower back, core, hip muscles
- **\*\*How to Perform\*\***: Lie on your back with knees bent, feet flat on the floor, and arms by your sides. Push through your heels, lift your hips to form a straight line from shoulders to knees, hold for 2-3 seconds, and lower back down.
- **\*\*Reps\*\***: 2 sets of 12-15 reps
- **\*\*Modification\*\***: Keep the core engaged throughout the movement.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*5. Stretching Routine\*\***

- **\*\*Target\*\***: Hamstrings, quadriceps, calves, lower back
- **\*\*Duration\*\***: 10-15 minutes post-workout, focusing on mobility and reducing muscle tightness.
- **\*\*Types of Stretches\*\***: Hamstring stretch, quad stretch (standing or lying), calf stretch, and gentle back stretches (e.g., child's pose or cat-cow for the spine).

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**### \*\*Week 3-4: Building Endurance & Strength\*\*****\*\*1. Chair Squats (Knee-Friendly)\*\***

- **\*\*Target\*\***: Quadriceps, glutes, hips
- **\*\*How to Perform\*\***: Stand in front of a sturdy chair with feet shoulder-width apart. Slowly bend your knees and lower your hips as if you're going to sit down, but before you touch the chair, stand back up. Ensure knees don't go past toes.
- **\*\*Reps\*\***: 2 sets of 10-12 reps

- **Modification**: Use a chair or wall for support if necessary.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**2. Step-Ups (Low Step)**

- **Target**: Glutes, quads, hamstrings

- **How to Perform**: Using a low step (6-8 inches), step one foot onto the step and push through the heel to lift your body up. Step down and repeat on the other side.

- **Reps**: 2 sets of 10 reps per side

- **Modification**: Use a support (e.g., chair or handrail) if needed for balance.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**3. Dumbbell Bicep Curls**

- **Target**: Arms, biceps

- **How to Perform**: Stand or sit tall with a dumbbell in each hand. Keeping elbows close to your sides, curl the weights toward your shoulders, then lower back down.

- **Reps**: 2 sets of 12-15 reps

- **Modification**: Start with light dumbbells (1-3 kg) to avoid strain on the wrists.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*4. Seated Row with Resistance Band\*\***

- **\*\*Target\*\***: Upper back, shoulders, arms
- **\*\*How to Perform\*\***: Sit with legs extended, loop a resistance band around the soles of your feet, and hold the ends. Pull the band towards you, elbows close to the body, squeezing your shoulder blades together.
- **\*\*Reps\*\***: 2 sets of 12-15 reps
- **\*\*Modification\*\***: Use a resistance band with adjustable resistance.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*5. Core Exercises\*\***

- **\*\*Target\*\***: Abdominals, obliques
- **\*\*Examples\*\***:
  - **\*\*Seated Marching\*\***: Sit tall and alternate lifting one knee at a time towards your chest, engaging the core.
  - **\*\*Pelvic Tilts\*\***: Lie on your back, knees bent, and gently tilt the pelvis to flatten the lower back, engaging the abdominal muscles.
- **\*\*Reps\*\***: 2 sets of 10-12 reps for each exercise

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**### \*\*Week 5-6: Increasing Strength and Cardiovascular Endurance\*\***

**\*\*1. Swimming or Water Aerobics (Optional but Excellent for Joint Health)\*\***

- **\*\*Duration\*\***: 20-30 minutes
- **\*\*Intensity\*\***: Moderate (focus on controlled, rhythmic movements)
- **\*\*Modification\*\***: Swim or perform water exercises to minimize joint stress.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*2. Resistance Band Squat to Press\*\***

- **\*\*Target\*\***: Lower body, arms, and shoulders
- **\*\*How to Perform\*\***: Perform a squat while holding a resistance band at shoulder height. As you rise from the squat, press the band overhead.
- **\*\*Reps\*\***: 2 sets of 10-12 reps

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**3. Deadlifts (With Light Dumbbells or Resistance Band)\*\***

- **\*\*Target\*\***: Hamstrings, glutes, lower back
- **\*\*How to Perform\*\***: Stand with feet hip-width apart. With slight bend in knees, hinge at the hips to lower weights down toward the floor, keeping a straight back. Engage glutes to return to standing.
- **\*\*Reps\*\***: 2 sets of 10-12 reps

Mark your level according to the exercise:

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise?

4. Resistance Band Lateral Leg Raises\*\*

- \*\*Target\*\*: Hip abductors, gluteus medius

- \*\*How to Perform\*\*: With a resistance band around your legs, lift one leg out to the side while keeping your torso upright. Return to starting position.

- \*\*Reps\*\*: 2 sets of 12 reps per side

Mark your level according to the exercise:

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise?

### \*\*Week 7-8: Focus on Intensity and Fat Loss\*\*

\*\*1. Interval Walking or Cycling\*\*

- \*\*Duration\*\*: 30 minutes of alternating between fast and moderate-paced walking or cycling for 1-2 minute intervals.

- \*\*Intensity\*\*: Moderate to high during fast intervals.

Mark your level according to the exercise:

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*2. Squat Holds with Calf Raises\*\***

- **\*\*Target\*\***: Quads, calves, glutes

- **\*\*How to Perform\*\***: Hold a squat position (slightly above parallel) and perform small calf raises while maintaining the squat hold.

- **\*\*Reps\*\***: 2 sets of 10-12 reps

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*3. Chair Dips (for Triceps)\*\***

- **\*\*Target\*\***: Upper arms (triceps)

- **\*\*How to Perform\*\***: Sit on the edge of a sturdy chair, place hands on the chair for support, and slowly lower the body down by bending the elbows. Push back up to starting position.

- **\*\*Reps\*\***: 2 sets of 10 reps

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**### \*\*Nutrition Guidelines:\*\***

1. **\*\*Balanced Meals\*\***: Include a mix of lean proteins, complex carbohydrates, healthy fats, and plenty of vegetables.

- **\*\*Protein\*\***: Chicken, turkey, tofu, beans, lentils, fish (salmon, mackerel, sardines)

- **\*\*Carbohydrates\*\***: Whole grains (brown rice, quinoa, oats), sweet potatoes, and non-starchy vegetables (spinach, broccoli, zucchini)

- **Fats**: Olive oil, avocado, nuts, seeds
- **Avoid**: Processed sugars, refined carbs (white bread, sugary snacks)

2. **Blood Sugar Management**: Focus on meals that have a low glycemic index to prevent spikes in blood sugar levels.

- **Include**: Fiber-rich foods (vegetables, whole grains, legumes)
- **Avoid**: High-sugar and high-fat foods, which can lead to increased blood sugar and insulin resistance.

3. **Hydration**: Drink at least 8 cups (2 liters) of water per day to stay hydrated and support fat loss.

**Mark your level according to the exercise:**

<b>Totally disagree</b> 1	<b>Strongly disagree</b> 2	<b>Disagree</b> 3	<b>Neither agree nor disagree</b> 4	<b>Agree</b> 5	<b>Strongly agree</b> 6	<b>Totally agree</b> 7
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**Do you have suggestions for this exercise?**

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#### General Health Protocols

Prompt: You're a seasoned fitness coach with over 15 years of experience in designing personalized workout programs based on the FITT principles (Frequency, Intensity, Time, and Type). You specialize in creating effective and sustainable fitness plans that cater to individual needs and goals, ensuring optimal results while considering the client's current physical condition and lifestyle.

Your task is to write an 8-week general health (fitness) program for a student. Here are the details to consider:

- Age: 22
- Weight: 65 kg
- Height: 185 cm
- Current Activity Level: No special physical activity
- Body Type: mesomorph

Please ensure that the program incorporates the FITT principles effectively and includes a variety of exercises to maintain motivation and engagement throughout the 8 weeks. Include considerations for progression and recovery, and highlight any important factors that the student should keep in mind.

### **Warm-Up Routine (5-10 minutes)**

A good warm-up is key to preventing injury and improving exercise performance.

1. **Dynamic Stretches** (2-3 minutes)

- **Arm Circles**: 10 reps forward, 10 reps backward.
- **Leg Swings**: 10 reps front to back, 10 reps side to side.
- **Torso Twists**: 10 reps each side.

2. **Light Cardio** (3-5 minutes)

- Brisk walking or jogging
- Jump rope (if space allows)
- Stationary cycling or elliptical

### **Cool-Down Routine (5-10 minutes)**

Focus on slow, deep breathing and static stretches.

1. **Hamstring Stretch**: Hold for 30 seconds on each side.
2. **Quad Stretch**: Hold for 30 seconds on each side.
3. **Chest Stretch**: Hold for 30 seconds, stretching arms wide.
4. **Child's Pose** (or Cat-Cow): Hold for 1 minute to stretch the back and hips.
5. **Calf Stretch**: Hold for 30 seconds on each side.

### **Week 1-2: Foundation Phase – Establishing Consistency**

**Frequency: 3 days per week**

**Intensity: Low to moderate**

**Time: 30 minutes per session**

**1. Full-Body Circuit (Strength & Conditioning)**

- **Bodyweight Squats**: 2 sets of 10-12 reps
- **Push-ups** (knee or standard): 2 sets of 8-10 reps
- **Glute Bridges**: 2 sets of 10-12 reps
- **Plank**: Hold for 20-30 seconds (build up over time)
- **Walking Lunges**: 2 sets of 10 steps per leg
- **Rest**: 1-2 minutes between each circuit

Perform the circuit 2-3 times, depending on your energy level. Focus on proper form.

**Mark your level according to the exercise:**

<b>Totally disagree</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Totally agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

Do you have suggestions for this exercise?

**\*2. Cardio (Low-Impact)\*\***

- **\*\*Brisk Walking\*\*** or **\*\*Cycling\*\*** (stationary or outdoor):

- 20-30 minutes at a moderate pace, where talking is possible but slightly challenging.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise?

**\*\*3. Flexibility\*\***

- **\*\*Yoga or Stretching\*\***: Follow a simple 5-10 minute routine that targets major muscle groups. Incorporate deep breathing for relaxation.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise?

**### \*\*Week 3-5: Strength & Cardio Development Phase\*\***

**Frequency:** 4 days per week

**Intensity:** Moderate (gradually increasing)

**Time:** 40-45 minutes per session

**\*\*1. Strength Training (Split Routine)\*\***

- **Upper Body (Day 1)**
  - **Push-ups** (standard or incline): 3 sets of 10 reps
  - **Dumbbell Rows** (use light dumbbells or household items): 3 sets of 10-12 reps
  - **Bicep Curls** (using dumbbells): 3 sets of 10-12 reps
  - **Shoulder Press** (using dumbbells): 3 sets of 10-12 reps
- **Lower Body (Day 2)**
  - **Bodyweight Squats**: 3 sets of 12-15 reps
  - **Lunges** (bodyweight or with light dumbbells): 3 sets of 10 reps per leg
  - **Glute Bridges**: 3 sets of 12 reps
  - **Calf Raises**: 3 sets of 15-20 reps

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**2. Cardio (Moderate Intensity)**

- **Jogging** or **Brisk Walking** (outdoor or treadmill):
  - 30-35 minutes at a moderate pace, increasing your pace for short intervals (1-2 minutes) to elevate heart rate.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**3. Flexibility & Core Work**

- **Plank**: Hold for 30-45 seconds (add more sets if easy)
- **Russian Twists**: 3 sets of 15 reps per side (can be done with or without weight)
- **Stretching or Yoga**: Follow a 10-minute routine to stretch key areas like hamstrings, quads, chest, and back.

Mark your level according to the exercise:

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise?

### **\*\*Week 6-8: Performance & Progression Phase\*\***

#### **\*\*Frequency\*\***: 4-5 days per week

#### **\*\*Intensity\*\***: Moderate to high (strength + cardio intervals)

#### **\*\*Time\*\***: 45 minutes per session

#### **\*\*Type\*\***: Increased intensity in both strength training and cardio

**\*\*1. Strength Training (Split Routine – 4 days per week)\*\***

- **\*\*Upper Body (Day 1)\*\***

- **\*\*Push-ups\*\***: 3 sets of 12-15 reps
- **\*\*Dumbbell Rows\*\***: 3 sets of 12-15 reps
- **\*\*Chest Press\*\*** (dumbbells): 3 sets of 12-15 reps
- **\*\*Lateral Raises\*\*** (dumbbells): 3 sets of 12 reps

- **\*\*Lower Body (Day 2)\*\***

- **\*\*Bodyweight or Weighted Squats\*\***: 3 sets of 12-15 reps
- **\*\*Lunges (Weighted or Bodyweight)\*\***: 3 sets of 12 reps per leg
- **\*\*Step-ups\*\*** (with or without dumbbells): 3 sets of 12 reps per leg
- **\*\*Hip Thrusts\*\*** (using bench or mat): 3 sets of 12-15 reps

Mark your level according to the exercise:

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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Do you have suggestions for this exercise

**\*\*2. Cardio (HIIT + Steady State Intervals)\*\***

- **\*\*HIIT on Treadmill/Cycling\*\*** (Alternate 30 seconds high-intensity, 1 minute low-intensity):

- 20-25 minutes total (e.g., alternate between fast walking and jogging or cycling)

- **\*\*Steady-State Cardio\*\*** (Jogging, Brisk Walking, or Swimming):

- 25-30 minutes at moderate intensity

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**

**\*\*3. Flexibility & Core Work\*\***

- **\*\*Plank Variations\*\***: 3 sets of 45 seconds (side planks, forearm planks)

- **\*\*Leg Raises or Bicycle Crunches\*\***: 3 sets of 12-15 reps

- **\*\*Stretching or Yoga\*\***: Incorporate dynamic and static stretches, holding each stretch for 30 seconds to 1 minute.

**Mark your level according to the exercise:**

<b>Totally disagree</b> <b>1</b>	<b>Strongly disagree</b> <b>2</b>	<b>Disagree</b> <b>3</b>	<b>Neither agree nor disagree</b> <b>4</b>	<b>Agree</b> <b>5</b>	<b>Strongly agree</b> <b>6</b>	<b>Totally agree</b> <b>7</b>
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**Do you have suggestions for this exercise?**