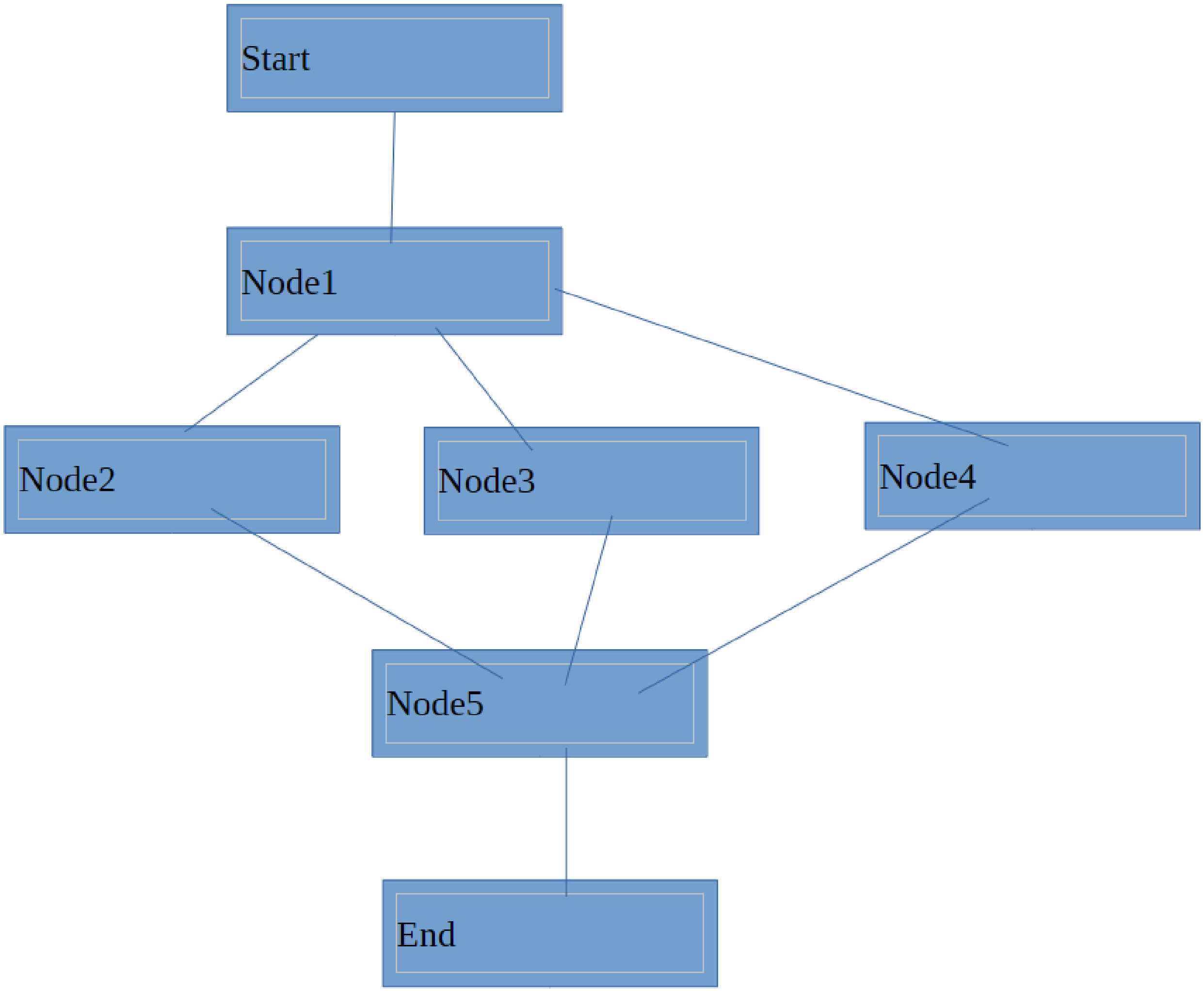
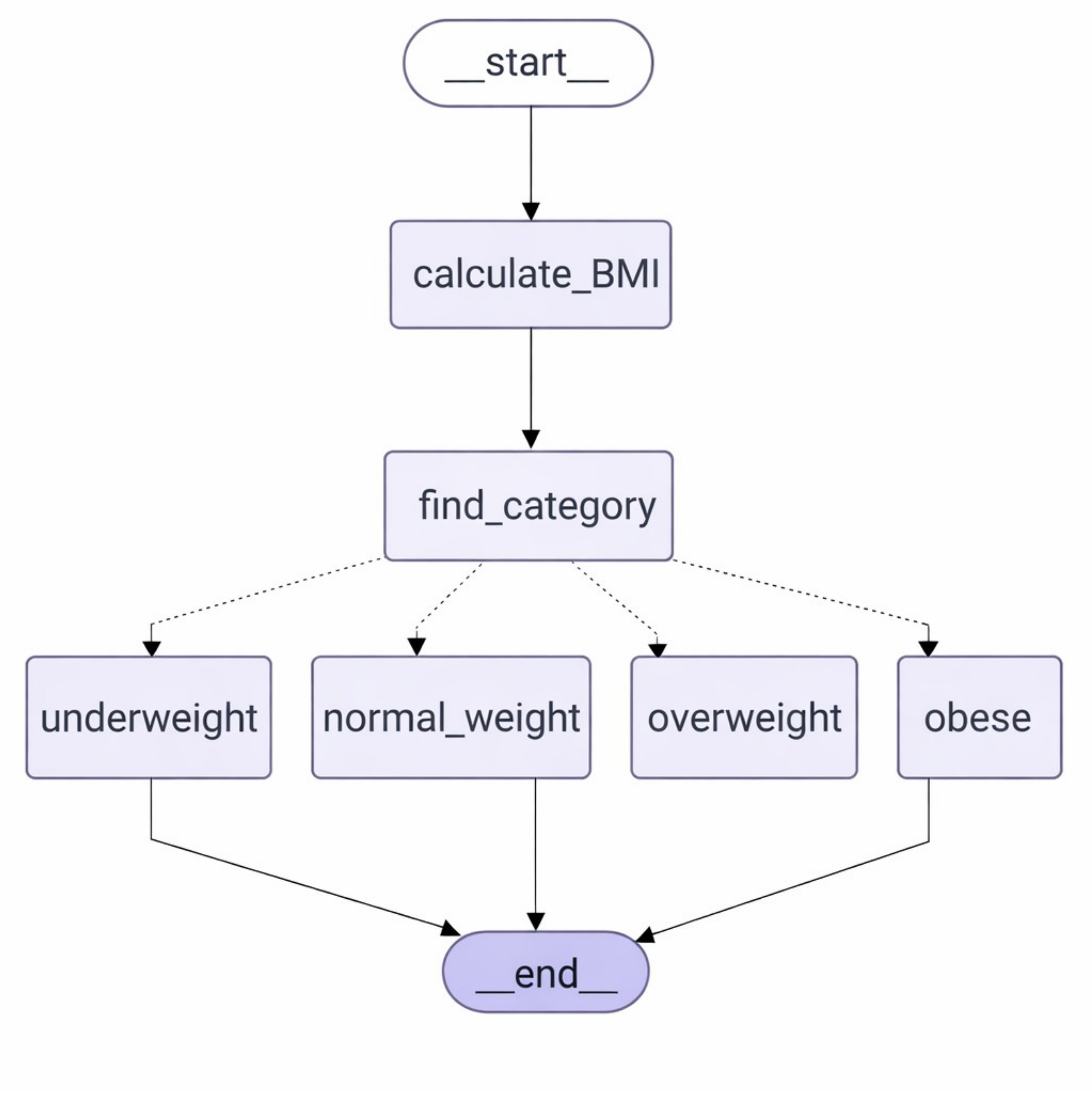
LangGraph Conditional Edge:

In a Graph, we have multiple workflows: Sequential, Parallel and Conditional



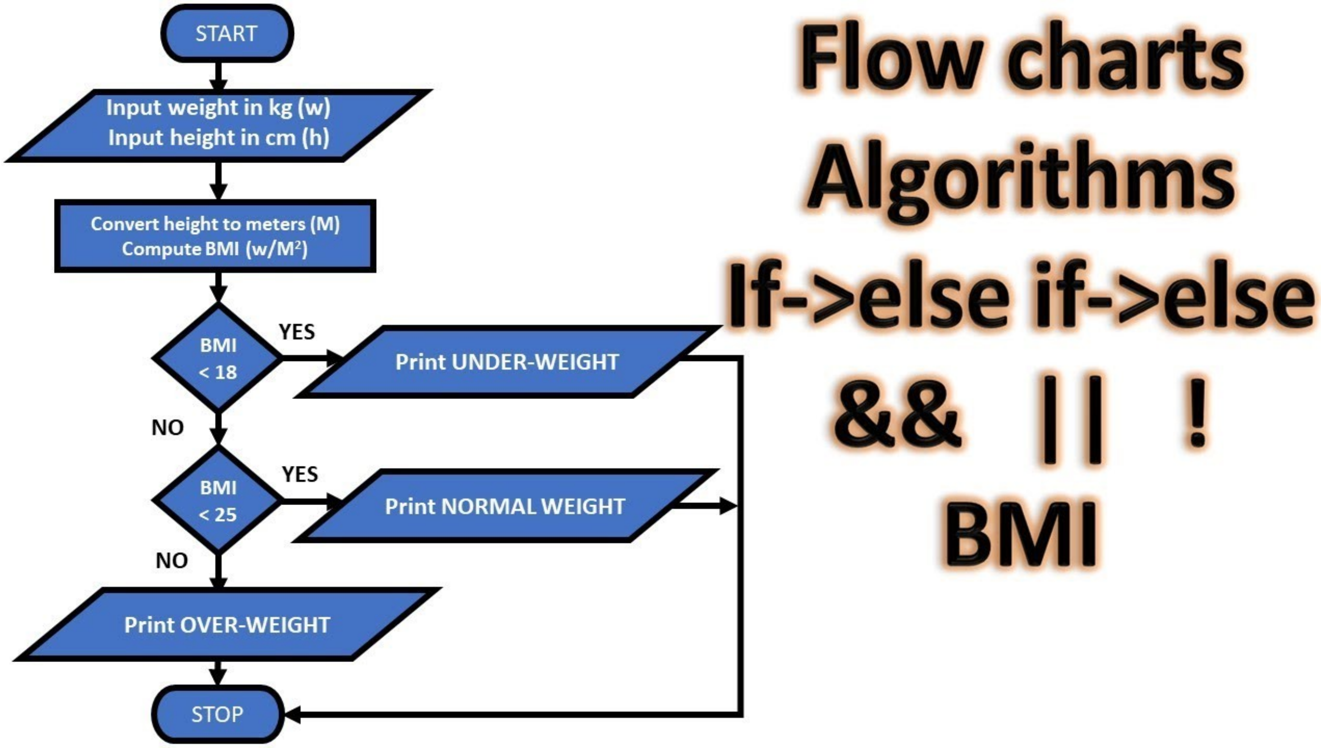
Difference between Parallel and Conditional workflow:
After Node1, in Parallel workflow we execute all Node2, 3, and 4. In Conditional, you are not going to execute all nodes, instead, we are going to select one of the three Nodes or options. Based on output from Node1 from AI, it will decide whether we should execute Node2, 3 or 5. In programming, we do it with the help of If-else. If you are executing Node2, then Node3 and 4 are not executed.
Instead of saying add_edge(start, N1), we will say addConditionalEdge(N1, router). In conditional edge, we will create a function called as ‘router’, based on the decision from router you will either go to N2, N3, N4. In a conditional edge, we add two things, Node and router. How do we create that router?

For this, we want to decide the category of the user
BMI < 18.5 => Underweight
18.5 <= BMI < 25 => Normal weight
25 <= BMI < 30 => Overweight
BMI >= 30 => Obese
Dotted lines are conditional edges. ‘find_category’ is the router.


__start__
calculate_BMI
find_category
underweight
normal_weight
overweight
obese
__end__

It can be used in credit card operations also, in creditcards, we get different kinds of cards, how much reward points per transaction we get depends upon type of credit card.

Old way would be:



bmi_conditional.py

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{'weight': 50.0, 'height': 170.0, 'bmi_value': 17.3, 'bmi_category': 'Underweight', 'bmi_explanation': "A
BMI below 18.5 is categorized as underweight. This can be due to factors like nutrition, metabolism,
genetics, or underlying health conditions. It's important to ensure adequate nutrition and consult a
healthcare provider if necessary.", 'response': "BMI: 17.3 - UNDERWEIGHT\n    Status:
Underweight\n    Recommendation: 1. **Increase Caloric Intake:** Focus on eating more calories than
your body burns. Aim to have frequent meals and snacks throughout the day. \n   - Include energy-
dense foods like nuts, seeds, avocado, and olive oil in your diet.\n   - Consider incorporating smoothies
or shakes made with full-fat milk or yogurt.\n\n2. **Nutrient-Dense Foods:** Ensure that the extra
calories come from nutritious sources to improve overall health and support muscle gain.\n   - Choose
whole grains, lean proteins, fruits, vegetables, and healthy fats.\n\n3. **Protein-Rich Diet:** Proteins
are essential for growth and muscle development. \n   - Incorporate lean meats, poultry, fish, eggs,
beans, tofu, and dairy products into your meals.\n\n4. **Strength Training:** Engage in regular
strength or resistance training exercises to build muscle mass, which can help increase weight in a
healthy way.\n   - Consult with a fitness trainer if needed to develop a safe and effective workout plan.
\n\n5. **Limit Cardio:** While cardiovascular exercise is important for health, limiting excessive
amounts may be beneficial if you're trying to gain weight.\n   - Focus more on strength building
exercises instead.\n\n6. **Monitor Your Progress:** Keep track of your weight gain journey by
weighing yourself regularly and recording your progress. \n   - Adjust your diet and exercise routine as
needed if you aren’t seeing desired results over time.\n\n7. **Stay Hydrated:** Drink plenty of fluids
throughout the day, but avoid filling up on water or other low-calorie drinks before meals, which may
reduce appetite.\n\n8. **Consult a Healthcare Professional:** For personalized advice and to rule out
any underlying health issues that might be contributing to being underweight, seek guidance from a
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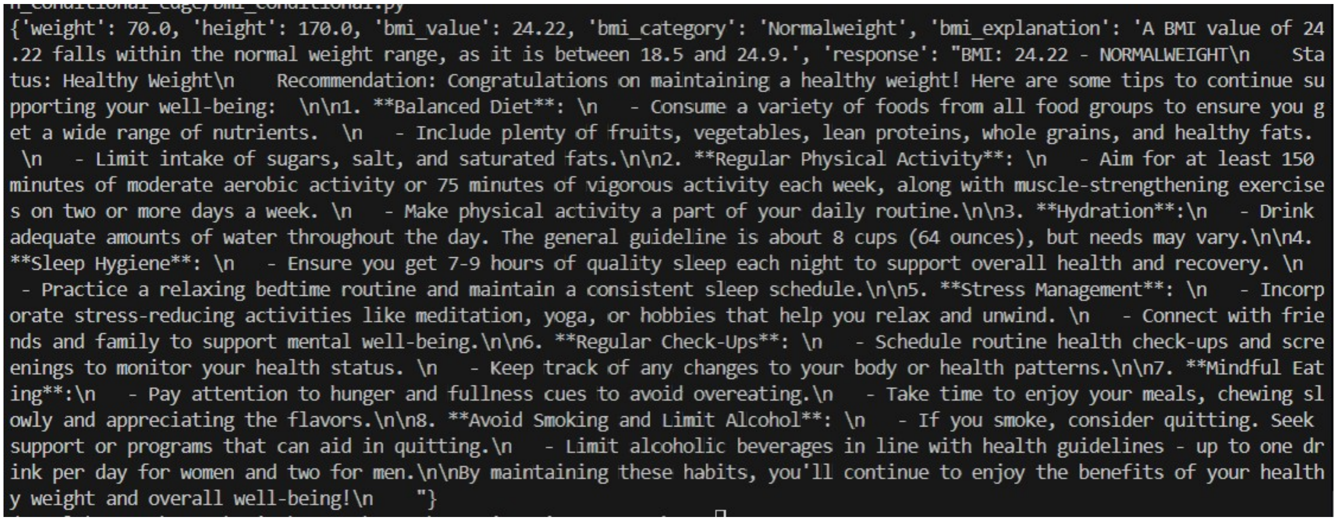
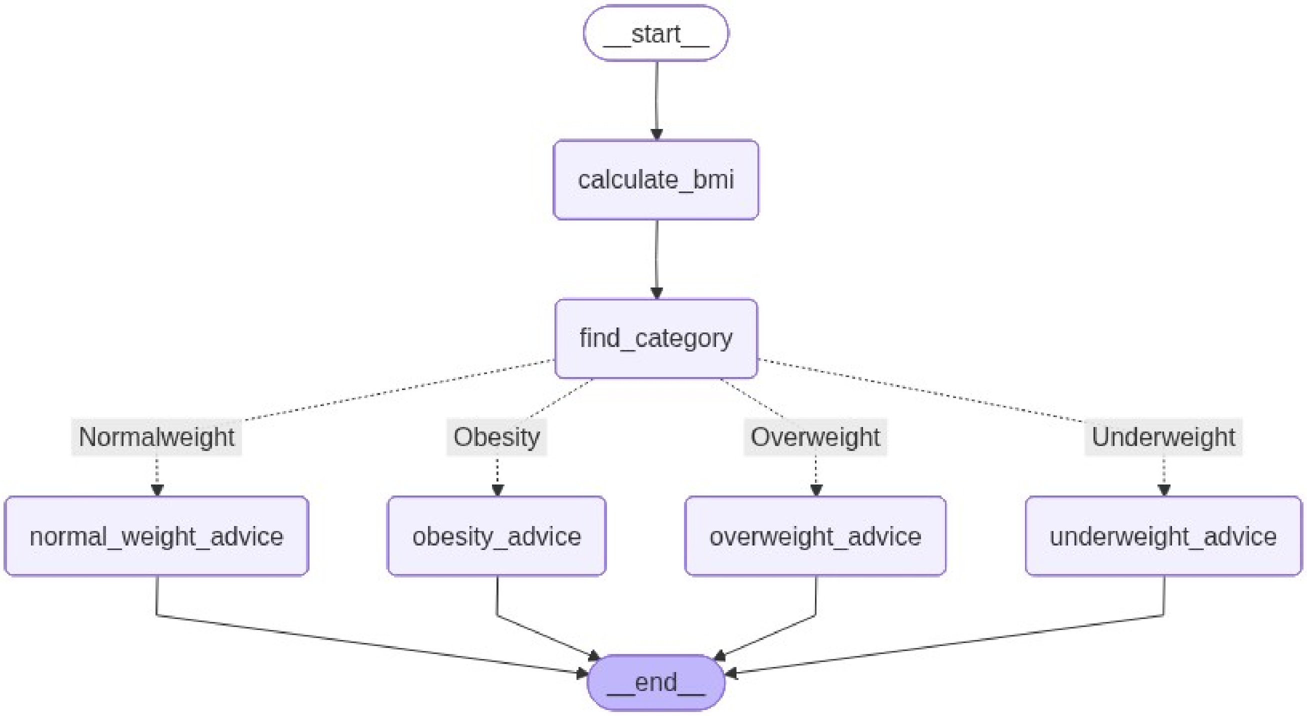
doctor or registered dietitian.\n\n9. **Ensure Proper Sleep:** Adequate rest is essential for recovery and muscle growth. Aim for 7-9 hours of quality sleep each night.\n\nRemember, gaining weight can be just as challenging as losing weight, so it's important to be patient with yourself and focus on gradual, healthy weight gain.\n   "}



```
n_conditional_edge/bmi_conditional.py
{'weight': 70.0, 'height': 170.0, 'bmi_value': 24.22, 'bmi_category': 'Normalweight', 'bmi_explanation': 'A BMI value of 24
.22 falls within the normal weight range, as it is between 18.5 and 24.9.', 'response': "BMI: 24.22 - NORMALWEIGHT\n    Sta
tus: Healthy Weight\n    Recommendation: Congratulations on maintaining a healthy weight! Here are some tips to continue su
pporting your well-being:  \n\n1. **Balanced Diet**: \n   - Consume a variety of foods from all food groups to ensure you g
et a wide range of nutrients.  \n   - Include plenty of fruits, vegetables, lean proteins, whole grains, and healthy fats.
 \n   - Limit intake of sugars, salt, and saturated fats.\n\n2. **Regular Physical Activity**: \n   - Aim for at least 150
minutes of moderate aerobic activity or 75 minutes of vigorous activity each week, along with muscle-strengthening exercise
s on two or more days a week. \n   - Make physical activity a part of your daily routine.\n\n3. **Hydration**:\n   - Drink
adequate amounts of water throughout the day. The general guideline is about 8 cups (64 ounces), but needs may vary.\n\n4.
**Sleep Hygiene**: \n   - Ensure you get 7-9 hours of quality sleep each night to support overall health and recovery. \n
 - Practice a relaxing bedtime routine and maintain a consistent sleep schedule.\n\n5. **Stress Management**: \n   - Incorp
orate stress-reducing activities like meditation, yoga, or hobbies that help you relax and unwind. \n   - Connect with frie
nds and family to support mental well-being.\n\n6. **Regular Check-Ups**: \n   - Schedule routine health check-ups and scre
enings to monitor your health status. \n   - Keep track of any changes to your body or health patterns.\n\n7. **Mindful Eat
ing**:\n   - Pay attention to hunger and fullness cues to avoid overeating.\n   - Take time to enjoy your meals, chewing sl
owly and appreciating the flavors.\n\n8. **Avoid Smoking and Limit Alcohol**: \n   - If you smoke, consider quitting. Seek
support or programs that can aid in quitting.\n   - Limit alcoholic beverages in line with health guidelines - up to one dr
ink per day for women and two for men.\n\nBy maintaining these habits, you'll continue to enjoy the benefits of your health
y weight and overall well-being!\n    "}
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