Task 2: Ground-Environment Analysis (Student B)

Scenario Selection and Justification *From the scenarios in Group 3 (S3.1 to S3.3), select the one you hypothesize to be the most effective for mitigating urban heat compared to the baseline scenario S0. State your choice below and provide a detailed justification.*

Selected Scenario:

Justification:

A. Analysis of Environmental Conditions (T_{air}, MRT, RH, V_{air})

Insert supporting figures (e.g., contour or time-series plots) below. You may insert a composite figure with multiple panels; if so, please label them (a), (b), etc., and describe each panel in your caption. Refer to all figures in your analysis.

Insert figure(s) for Environmental Conditions analysis
(Use a PDF editor to insert your image(s) here)

Figure 2.1:

*Provide a comprehensive analysis of the changes in environmental conditions for both **daytime** and **nighttime**. Explain the physical mechanisms (e.g., how high albedo pavement reduces surface temperature and subsequently T_{air} and MRT, or how sandy loam increases RH).*

B. Analysis of Surface Fluxes

Insert supporting figures, provide captions, and refer to them in your analysis.

Insert figure(s) for Surface Flux analysis
(Use a PDF editor to insert your image(s) here)

Figure 2.2:

Analyze how the modified ground cover alters the surface energy balance. For light concrete, focus on the reduction in net shortwave radiation and subsequent changes in Q_H and ΔQ_S. For sandy loam or grass, discuss the introduction of Q_E and its effect on the partitioning of available energy compared to the impervious baseline.

C. Analysis of Thermal Comfort (PET)

Insert supporting figures, provide captions, and refer to them in your analysis.

Insert figure(s) for Thermal Comfort analysis
(Use a PDF editor to insert your image(s) here)

Figure 2.3:

Analyze the impact on PET. Discuss where and when the greatest improvements in comfort are achieved. Relate the changes in PET to the underlying changes in the environmental variables from Part A.