

Approach:-

Struct is made for robots, students and vessels which store some variables according to the requirement.

Threads are created for robots, containers and students and I have waited until all the threads of students join and when all of them gets joined the code is exited.

Struct variables of vessels and students will take care of the conditions about filling the container with food and assigning the slots and all other conditions.

Implementation:-

Struct is made for students, robots and vessels initially.

In Main function:-

Inputs have been taken and all the required initializations have been made.

Then each robot is a thread which will call its functions for that particular robot.

Similarly for students and vessels.

At last when all the students threads are joined then only the program is exited.

In function called by Robots:-

Random values are generated for time to prepare, number of vessels and capacity.

Then that robot goes on sleep mode for that particular time and after that it calls another function when biryani is ready.

This function goes on till the number of vessels it can fill is positive.

If any container is empty then robot will fill it.

If number of vessels it can now fill is zero it will then that robot will again prepare biryani.

In function called by Containers:-

This function will go on until the code exits.

If the container is empty it will do nothing otherwise it will assign slots randomly.

After assigning slots it will call a function.

If number of slots are non-empty it will do nothing otherwise it will update some variable and return.

In function called by Students:-

When a student arrives it checks every table by locking it and if any slot is available it gets a slot at that container and variables are updated according to that.

Then it gets food at the table.