Instructions - Mechanism T

This is an experiment in the economics of decision making. The instructions are simple, and if you follow them carefully and make good decisions, you might earn a considerable amount of money. In this experiment, we simulate a procedure to allocate students to schools. The procedure, payment rules, and student allocation method are described below. Do not communicate with each other during the experiment. If you have questions at any point during the experiment, raise your hand and the experimenter will help you.

Procedure

- There are 36 participants in this experiment. You are participant #1.
- In this simulation, 36 school slots are available across seven schools. These schools differ in size, geographic location, specialty, and quality of instruction in each specialty. Each school slot is allocated to one participant. There are three slots each at schools A and B, and six slots each at schools C, D, E, F and G.
- **Your payoff** amount depends on the school slot you hold at the end of the experiment. Payoff amounts are outlined in the following table. These amounts reflect the desirability of the school in terms of location, specialty and quality of instruction.

Slot received at School:	A	B	C	D	E	F	G
Payoff to Participant #1 (in dollars)	13	16	9	2	5	11	7

  The table is explained as follows:

  - You will be paid $13 if you hold a slot at school A at the end of the experiment.
  - You will be paid $16 if you hold a slot at school B at the end of the experiment.
  - You will be paid $9 if you hold a slot at school C at the end of the experiment.
  - You will be paid $2 if you hold a slot at school D at the end of the experiment.
  - You will be paid $5 if you hold a slot at school E at the end of the experiment.
  - You will be paid $11 if you hold a slot at school F at the end of the experiment.
  - You will be paid $7 if you hold a slot at school G at the end of the experiment.

  ***NOTE* different participants might have different payoff tables.** That is, payoff by school might be different for different participants.

- During the experiment, each participant first completes the Decision Sheet by indicating school preferences. The Decision Sheet is the last page of this packet. Note that you need to rank all seven schools in order to indicate your preferences.
- After all participants have completed their Decision Sheets, the experimenter collects the Sheets and starts the allocation process.
- Once the allocations are determined, the experimenter informs each participants of his/her allocation slot and respective payoff.

Allocation Method

- In this experiment, participants are defined as belonging to the following school districts.
  - Participants #1 - #3 live within the school district of school A,
  - Participants #4 - #6 live within the school district of school B,
  - Participants #7 - #12 live within the school district of school C,
  - Participants #13 - #18 live within the school district of school D,
  - Participants #19 - #24 live within the school district of school E,
  - Participants #25 - #30 live within the school district of school F,
  - Participants #31 - #36 live within the school district of school G.
- Each participant is first tentatively assigned to the school within his/her respective district. Next, Decision Sheet rankings are used to determine mutually beneficial exchanges between two or more participants. The order in which these exchanges are considered is determined by a fair lottery. This means each participant has an equal chance of being the first in the line, the second in the line, $\cdots$, as well as the last in the line. To determine this fair lottery, a participant will be asked to draw 36 ping pong balls from an urn, one at a time. Each ball has a number on it, corresponding to a participant ID number. The sequence of the draw determines the order in the lottery.
- The specific allocation process is explained below.
  - Initially all slots are available for allocation.
  - All participants are ordered in a queue based on the order in the lottery.
  - Next, an application to the highest ranked school in the Decision Sheet is submitted for the participant at the top of the queue.
    - If the application is submitted to his district school, then his tentative assignment is finalized (thus he is assigned a slot at his district school). The participant and his assignment are removed from subsequent allocations. The process continues with the next participant in line.
    - If the application is submitted to another school, say school S, then the first participant in the queue who tentatively holds a slot at School S is moved to the top of the queue directly in front of the requester.
  - Whenever the queue is modified, the process continues similarly: An application is submitted to the highest ranked school with available slots for the participant at the top of the queue.
    - If the application is submitted to his district school, then his tentative assignment is finalized. The process continues with the next participant in line.

    - If the application is submitted to another school, say school S, then the first participant in the queue who tentatively holds a slot at school S is moved to the top of the queue directly in front of the requester. This way, each participant is guaranteed an assignment which is at least as good as his/her district school based on the preferences indicated in his/her Decision Sheet.

- A mutually-beneficial exchange is obtained when a cycle of applications are made in sequence, which benefits all affected participants, e.g., I apply to John's district school, John applies to your district school, and you apply to my district school. In this case, the exchange is completed and the participants as well as their assignments are removed from subsequent allocations.
- The process continues until all participants are assigned a school slot.

An Example:

We will go through a simple example to illustrate how the allocation method works.

Students and Schools: In this example, there are six students, 1-6, and four schools, Clair, Erie, Huron and Ontario.

Student ID Number: $1, 2, 3, 4, 5, 6$	Schools: Clair, Erie, Huron, Ontario

Slots and Residents: There are two slots each at Clair and Erie, and one slot each at Huron and Ontario. Residents of districts are indicated in the table below.

School	Slot 1	Slot 2	District Residents
Clair	☐	☐	1 2
Erie	☐	☐	3 4
Huron	☐		5
Ontario	☐		6

Tentative assignments: Students are tentatively assigned slots at their district schools.

School	Slot 1	Slot 2	
Clair	1	2	Students 1 and 2 are **tentatively assigned** a slot at Clair;
Erie	3	4	Students 3 and 4 are **tentatively assigned** a slot at Erie;
Huron	5	–	Student 5 is **tentatively assigned** a slot at Huron;
Ontario	6	–	Students 6 is **tentatively assigned** a slot at Ontario.

Lottery: The lottery produces the following order.

$$1 - 2 - 3 - 4 - 5 - 6$$

Submitted School Rankings: The students submit the following school rankings:

	1st Choice	2nd Choice	3rd Choice	Last Choice
Student 1	Huron	Clair	Ontario	Erie
Student 2	Huron	Ontario	Clair	Erie
Student 3	Ontario	Clair	Erie	Huron
Student 4	Huron	Clair	Ontario	Erie
Student 5	Ontario	Huron	Clair	Erie
Student 6	Clair	Erie	Ontario	Huron

This allocation method consists of the following steps:

Step 1 : A fair lottery determines the following student order: 1-2-3-4-5-6. Student 1 has ranked Huron as his top choice. However, the only slot at Huron is tentatively held by student 5. So student 5 is moved to the top of the queue.

Step 2 : The modified queue is now 5-1-2-3-4-6. Student 5 has ranked Ontario as his top choice. However, the only slot at Ontario is tentatively held by student 6. So student 6 is moved to the top of the queue.

Step 3 : The modified queue is now 6-5-1-2-3-4. Student 6 has ranked Clair as her top choice. The two slots at Clair are tentatively held by students 1 and 2. Between the two, student 1 is ahead in the queue. So student 1 is moved to the top of the queue.

Step 4 : The modified queue is now 1-6-5-2-3-4. Remember that student 1 has ranked Huron as his top choice. A cycle of applications is now made in sequence in the last three steps: student 1 applied to the tentative assignment of student 5, student 5 applied to the tentative assignment of student 6, and student 6 applied to the tentative assignment of student 1. These mutually beneficial exchanges are carried out: student 1 is assigned a slot at Huron, student 5 is assigned a slot at Ontario, and student 6 is assigned a slot at Clair. These students as well as their assignments are removed from the system.

Step 5 : The modified queue is now 2-3-4. There is one slot left at Clair and two slots left at Erie. Student 2 applies to Clair, which is her top choice between the two schools with remaining slots. Since student 2 tentatively holds a slot at Clair, her tentative assignment is finalized. Student 2 and her assignment are removed from the system.

Step 6 : The modified queue is now 3-4. There are two slots left at Erie. Student 3 applies to Erie, which is the only school with available slots. Since Student 3 tentatively holds a slot at Erie, her tentative assignment is finalized. Student 3 and her assignment are removed from the system.

Step 7 : The only remaining student is student 4. There is one slot left at Erie. Student 4 applies to Erie for the last available slot. Since Student 4 tentatively holds a slot at Erie, his tentative assignment is finalized. Student 4 and his assignment are removed from the system.

Final assignment Based on this method, the final allocations are:

Student	1	2	3	4	5	6
School	Huron	Clair	Erie	Erie	Ontario	Clair

Illustration

	Queue	Available Slots	The top student in the queue applies to a school.	At the end of the step
Step 1	1-2-3-4-5-6	Clair Clair Erie Erie Huron Ontario	1 applies to her 1st choice Huron, which is tentatively assigned to 5.	5 comes to the top. 1-2-3-4-**5**-6
Step 2	5-1-2-3-4-6	Clair Clair Erie Erie Huron Ontario	5 applies to her 1st choice Ontario which is tentatively assigned to 6.	6 comes to the top. 5-1-2-3-4-**6**
Step 3	6-5-1-2-3-4	Clair Clair Erie Erie Huron Ontario	6 applies to her 1st choice Clair, which is tentatively assigned to 1 and 2.	1 comes to the top. 6-5-**1**-2-3-4
Step 4	1-6-5-2-3-4	Clair Clair Erie Erie Huron Ontario	A cycle happens in the last 3 steps.	1 gets a slot at Huron. 5 gets a slot at Ontario. 6 gets a slot at Clair.
Step 5	2-3-4	Clair Erie Erie	2 applies to her 3rd choice Clair, because her 1st and 2nd choices (Huron and Ontario) are no longer available.	2 gets a slot at Clair, because she is a resident in Clair.
Step 6	3-4	Erie Erie	3 applies to Erie which is still available.	3 gets a slot at Erie, because he is a resident in Erie.
Step 7	4	Erie	4 applies to Erie.	4 gets a slot at Erie, because she is a resident in Erie.

Final assignment Based on this method, the final allocations are:

Student	1	2	3	4	5	6
School	Huron	Clair	Erie	Erie	Ontario	Clair

You will have 15 minutes to go over the instructions at your own pace, and make your decisions. Feel free to earn as much cash as you can. Are there any questions?

Decision Sheet - Mechanism T

- Recall: You are participant _#1_ and you live within the school district of School _A_.
- Recall: **Your payoff** amount depends on the school slot you hold at the end of the experiment. Payoff amounts are outlined in the following table.

School:	A	B	C	D	E	F	G
Payoff in dollars	13	16	9	2	5	11	7

You will be paid \$13 if you hold a slot of School A at the end of the experiment.
You will be paid \$16 if you hold a slot of School B at the end of the experiment.
You will be paid \$9 if you hold a slot of School C at the end of the experiment.
You will be paid \$2 if you hold a slot of School D at the end of the experiment.
You will be paid \$5 if you hold a slot of School E at the end of the experiment.
You will be paid \$11 if you hold a slot of School F at the end of the experiment.
You will be paid \$7 if you hold a slot of School G at the end of the experiment.

Please write down your ranking of the schools (A through G) from your first choice to your last choice. Please rank ALL seven schools.

1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	last choice

Your I.D : [#1] **Your Name** (print):_____

This is the end of the experiment for you. Please remain seated until the experimenter collects your Decision Sheet.

After the experimenter collects all Decision Sheets, a participant will be asked to draw ping pong balls from an urn to generate a fair lottery. The lottery, as well as all participants' rankings will be entered into a computer after the experiment. The experimenter will inform each participants of his/her allocation slot and respective payoff once it is computed.

Session Number : [1] Mechanism [3] Payoff Matrix [1]