Instructions

Welcome!

Thank you for participating in this study. This is a study of individual behavior and decision making. At this time, please turn off and put away any electronic devices/phones you may have brought with you. There may be moments where you will have to sit and wait while others in the room make their decisions, and we ask you to be patient.

This experiment has 3 parts. In each part you have the opportunity to earn points. The points will be converted to dollars for your final payment. The conversion rate is $1 = 10 points. In addition, you can earn points in a bonus stage. One part will be randomly chosen to determine your payment at the end of the session.

Part 1

In Part 1, everyone will have a chance to earn money by working on a task. The task is the same for everyone. We will call it the *Encoding Task*. The task consists of converting letters into numbers. Your screen displays a table with two rows. The first row contains all of the letters in the alphabet and the second row provides a number that goes with that letter. During the task, you will be given a letter and you must enter the corresponding number in the box on your screen. You must validate your answer by pressing the 'Submit' button. The computer only accepts correct entries, so if you answer incorrectly, a prompt will ask you to correct it. Once you submit the correct entry for that letter, the table will reset and you will be presented with another letter to encode and so on. You will have three minutes to convert as many letters as you can. A counter on the screen will keep track of the number of letters you encode.

- At the end of the 3 minutes, you will be informed of the number of letters you have encoded, broken down per minute.

Earnings for Part 1:

If Part 1 is chosen for payment, you will be paid based on how many letters you encode. There is a total amount of 100 points. The total number of letters you encode determines the *share of these 100 points* you will receive, in the following way:

Imagine there is a bag with 23 blue balls in it. For every letter you encode, we put a red ball into the bag. This means, if you encode a total of 'x' number of letters in the 3 minutes, the bag will contain 23 blue balls + 'x' red balls at the end of the 3 minutes.
The share of the 100 points you earn will be the percentage of red balls in the bag, given by:

$$=\frac{x}{x+23} * 100$$

If you encode 0 letters, you receive $\frac{0}{0+23} * 100$**=0 points**

If you encode 1 letter, you receive $\frac{1}{1+23} * 100$**=** $\frac{100}{24}$ **= 4.17 points**

If you encode 2 letters, you receive $\frac{2}{2+23} * 100 = \frac{200}{25} =$ **8 points**

….and so on…

Notice that the more letters you encode, you ***always*** earn more as the share of red balls in the bag increases. However, every *additional* letter you encode gives you a lower share per letter than the previous.

The exact payment schedule is listed in the table below: (Please take a moment to go over this, and ask us any questions you may have now).

Before we start, you will be given a chance to practice this task for a minute to familiarize yourself with the task. The number of letters converted during this practice time will not affect your earnings.

Part 2

In this part, you will be randomly assigned either the role of **A** or the role of **B**. The decisions you make may affect your earnings and the earnings of others.

Overview

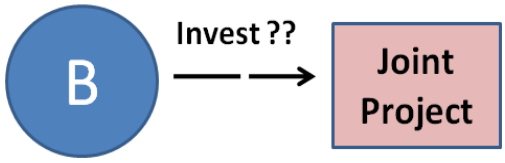
Each Player A will interact with another randomly chosen Player B in this room. *The amount of points you earn depends on the decisions made in your pair.* Your interaction is completely anonymous, so participants will only be referred to as A and B for the duration of the experiment.

Here is what you will have to do:

Player B Decision and Payoff:

Player B decides whether to invest or not in a project called "Joint Project". Investing is profitable *only* if the Joint Project is "successful".

- If B **invests**, and the Joint Project is **successful**, she receives **130 points**.
- If B **invests**, and the Joint Project is **unsuccessful**, she receives **10 points**.
- If B does **not invest** she receives **70 points**.



The success of the Joint Project, however is not under Player B's control. It depends on Player A and how much Player A works for the Joint Project. The more Player A works for the Joint Project, the higher the chance of it being successful (more on this below).

Player A Decision and Payoff:

Player A has two projects he can work on – the "Joint Project" and the "Personal Project". He has 4 minutes to work and he can split his time anyway he likes between the two Projects. Both Projects entail working on a series of encoding tasks as before. The number of letters encoded for each project is the measure of work done for that project. Player A's earnings is a sum of his earnings from each project.

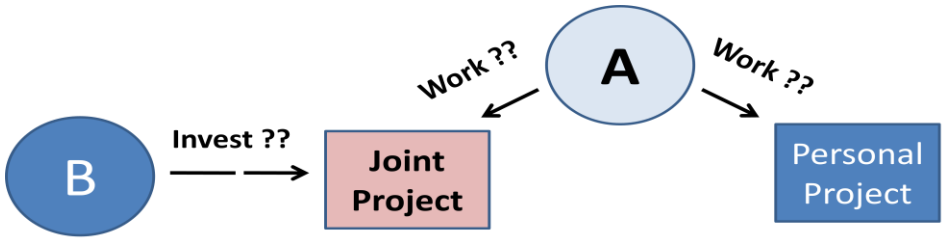
- Joint Project Earnings: Player A's earnings from the Joint Project depends *only* on Player B's investment decision.
  - **If Player B invests** in the Joint Project, Player A earns **120 points** from the Joint Project.

- **If Player B does not invest** in the Joint Project, Player A receives **0 points** from the Joint Project.
- These earnings do NOT depend on whether the Joint Project is successful.

➢ Personal Project Earnings: Player A's earnings from the Personal Project depends on how much he works (number of letters encoded) for the Personal Project. The payment for the Personal Project is exactly the same payment schedule as in Part 1.

- There is a total of 100 points. The total number of letters Player A encodes for the Personal Project determines the ***share of these 100 points*** **he receives**. There is a bag labeled "Personal Bag" which contains 23 blue balls. For every letter Player A encodes for the Personal Project, we add a red ball to the Personal Bag. After the 4 minutes are over, Player A receives a share from these 100 points. The percentage of red balls in the Personal Bag determines the share he receives.

Player A's Earnings = Earnings from Joint Project **+** Earnings from Personal Project.



When is the Joint Project Successful?

The amount of work done by Player A for the Joint Project (number of letters encoded for the Joint Project) determines the success of the Joint Project in the following way:

There is another bag labeled 'Joint Bag' which also contains 23 blue balls. For every letter Player A encodes for the Joint Project, we put a red ball in the 'Joint Bag'. After the end of the 4 minutes work time, we randomly pick a ball from this bag. If the ball drawn is red, the Joint Project is successful. If it is blue, the Joint Project fails.
This means that the chance of Joint Project being successful increases with the number of letters encoded by Player A for the Joint Project, as it increases the number of red balls in the 'Joint Bag' and makes it more likely that a red ball is selected. Conversely, the less Player A encodes the higher the chance that the Joint Project fails.

To represent this mathematically, if Player A encodes '*j*' number of letters for the Joint Project, the exact chance of success for the Joint Project is given by:

$$= \frac{j}{j+23} * 100$$

A sheet is provided to you that list the chance of success of the Joint Project for *each* possible number of letters encoded by Player A for the Joint Project. It also lists the earnings Player A would receive for the corresponding number of letters encoded in the Personal Project (if you didn't get the sheet, please raise your hand).

Information:

Player A will have 4 minutes to work on his Projects. Then, after the work-stage is over, Player B will make her investment decision.Note that Player B does NOT learn whether the Project is successful until AFTER she makes the investment decision. Player B NEVER finds out how many letters were encoded by Player A for the Joint Project; she only comes to know if it was successful or not.

Message:

After the work stage (but before Player B makes her investment decision), Player A has an option to send a message to Player B. In this message, Player A can state how many letters he has encoded for the Joint Project. Player B receives this message, after which Player B makes her investment choice. *The message is the only information Player B receives before she makes her investment decision.*

The sequence of the decisions is as follows:

1. Roles determined randomly in a pair. Participants informed of their roles and the ID of their co-participant.

2. **Work Stage:** Player A will have 4 minutes to work. For every letter encoded in the work-stage, Player A can decide which Project he would want the work to go towards. Player A will select which Project he wants to start with. At any point during the work-stage A will be allowed to switch back and forth as often he likes between the two Projects. There is no limit on the amount of times he is allowed to switch between these two Projects. Two counters displayed on the screen will keep track of the number of letters encoded for *each* Project. Between these, there are buttons that will allow Player A to switch between working for the two projects. If you are unsure about which Project your current work is going towards, you can find this information directly between the counters.

{*Let's see what Player A'sscreen will look like in the Work Stage.*
If you are Player A, this is the screen you will see: (Slide 1)
You will see the same encoding task as before. Right below the table, you will find information of which Project you are currently working on (Slide 2). If you wish to switch to the other project, simply click the

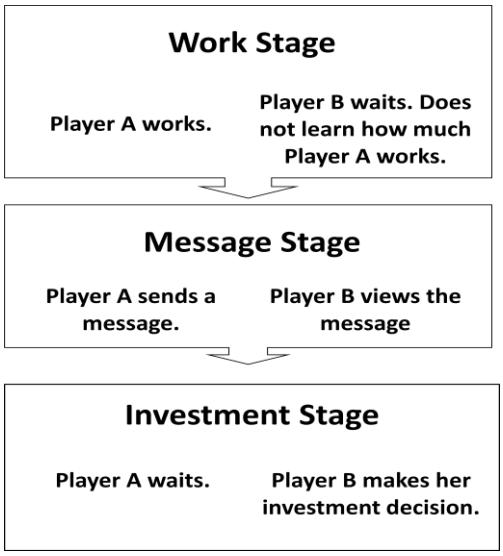
grey-button below it (Slide 3). You can switch between projects as many times as you wish. (Slide 4) On either side are tables that summarize your current performance in the two Projects to help you keep track of the number of letters encoded.(Slide 5). Each Project table indicates the number of letters you have encoded for that Project. Whichever Project you are working on, the number of letters on your screen for that Project will increase as you encode more and more. The Joint Project table also indicates the chance that the Joint Project will be successful given your current level of work in the Joint Project (Slide 6). The personal project indicates the total amount of points made in the personal project for the current amount of work (Slide 7). A table below indicates what the next letter encoded will add to the Joint Project in terms of chance of success and the Personal Project in terms of additional earnings(Slide 8). On the top right corner, a timer will count the remaining number of seconds for the work-stage to end. If you wish to switch to the other project, simply click the grey-button (Slide 9). Whichever Project you are currently working on, The corresponding table for the Project your current work is going towards will always be shown in red (Slide 10). After the work-stage is over, you will be shown the table summarizing your final performance in the two projects (Slide 11).
If you are Player B, you will wait for these 4 minutes while Player A works.}

1. **Message Stage:** Player A will be given the opportunity to send a message to Player B, where A can fill in a statement regarding how many letters he has encoded for the Joint Project as well as a suggestion to Player B on her action. The statement reads "Hi, I have encoded ____ letters for the Joint Project. You should/should not invest." Player A can fill in any non-negative number in the blank. If Player A chooses not to send any message, Player B will receive the message "A has chosen not to send any message". The message from A will be communicated to B as soon as he sends it.

{*Let's see what Player A and Player B's screens will look like in the Message Stage.*
If you are Player A, this is the screen you will see: (Slide 12)
There are three options of messages you can send. To the left, a table indicates for every letter encoded for the Joint Project, the corresponding chance of success. You mark the checkbox of the message you want to send and hit "Submit". If you choose to send a message (Slide13), you have to enter a non-negative number in the input box.After you "Submit", your co-participant Player B will see the message on a screen like this: (Slide 14)

2. **Investment Stage:** After Player B receives a message (if Player A sends one), Player B makes her investment choice. B will be able to see the message A sent her when she makes her investment decision.

{*Let's see what Player B's screen will look like in the Investment Stage.*
If you are Player B, this is the screen you will see: Slide 15
You will see the message sent to you by your co-participant Player A on the left. On the right, you input your investment decision. If you are Player A, you will wait till Player B makes their decision.}



We will provide the following information about your co-participant's decision and the outcome **at the end of the session**.

- Player A will be informed whether Player B invested or not and if the Joint Project was successful.
- If Player B **invested** in the Joint Project, she will only *be informed whether the Project was a success or a failure*. *Player B will not be informed of the number of letters encoded by Player A for the Joint Project.* If Player B **does not invest** in the Joint Project, she receives no information about the outcome of the Joint Project.

The last page is a summary broken down by role. There are a few questions about the procedure after that to test your understanding of the instructions. Please review that and raise your hand if you have a question. We'll take a few minutes to answer all questions, and then we'll begin.

To recap, broken down by roles:

Player A

- Decides to split 4 minutes worth of work between Personal Project and Joint Project.
- Can "send a message" to Player B after the Work Stage about how much he has worked for the Joint Project.
- Receives $\frac{x}{x+23} * 100$ points for 'x' letters encoded for the Personal Project.
- Receives **120 points** from the Joint Project, *only* if Player B invests in the Joint Project, otherwise **0 points.**

Player B

- Decides whether or not to invest in the Joint Project.
- "Receives a message" from Player A before she makes her investment decision, but never learns the number of letters encoded for the Joint Project
- If she invests and Joint Project is
  - successful receives **130 points**
  - failure receives **10 points**
- If she does not invest receives **70 points**.

1. Assume that you are **Player B** and you invest in the Joint Project. If the Joint Project is successful, you will receive _____ points, and if the Joint Project fails, you will receive _____ points.
2. Assume that you are **Player B** and you do not invest in the Joint Project. If the Joint Project is successful, you will receive _____ points, and if the Joint Project fails, you will receive _____ points.

3. The success of the Joint Project depends on which of the following?
   a. The number of letters Player A encodes for the Personal Project.
   b. The number of letters Player A encodes for the Joint Project.
   c. Player B's investment decision.

4. If you are **Player B,** you
   a. NEVER get to see how many letters Player A encoded for the Joint Project. (TRUE/FALSE)

b. will get to see the success/failure of the Joint Project BEFORE you decide whether or not to invest in the Joint Project. _____ (TRUE/FALSE)

5. will get to see the message from Player A (if Player A chooses to send a message), BEFORE you decide whether or not to invest in the Joint Project. _____ (TRUE/FALSE)

6. Does Player A's payoff from the Joint Project depend upon

    a. The success of the Joint Project? (YES/NO)
    b. Player B's investment decision? (YES/NO)
    c. How many letters Player A encodes for the Joint Project? (YES/NO)

7. Does Player A's payoff from the Personal Project depend upon

    a. The success of the Joint Project? (YES/NO)
    b. Player B's investment decision? (YES/NO)
    c. How many letters Player A encodes for the Personal Project? (YES/NO)

At some point in the experiment, you will get an opportunity to earn additional points in a Bonus Stage. Also, due to the number of participants in today's session, a Player B may be matched with more than one Player A. This should not affect your decisions in any way, as Player Bs will make separate decisions for each Player A she is matched with. You will find more information on the Bonus stage and matching on your screens when we start.

Part 3

This is the final part of the experiment. In this part, you will be asked to make decisions in 5 different rounds.

Roles:

- At the beginning of Round 1, half of the people in this room will be assigned the role of **Player 1** and the other half will be assigned the role of **Player 2**. Your role will remain constant over all 5 rounds.
- In each round, a Player 1 will be matched with a Player 2, and the two of you will form a pair. You will be matched with a DIFFERENT person in the room in each round, *so you will never interact with the same person more than once*.
- In each round, Player 1 will make his choice **first**, and Player 2 will make her choice **second**.
- Player 2 will NOT learn Player 1's decision before she makes her own choice.

Decisions and Payoffs:

In each round, you will decide whether you want to choose action '**X**' or '**Y**.' Your payoffs will depend on what *you* choose and on what the *other perso*n in your pair chooses. The possible payoffs depending on the choice both of you make will be represented in a table, like this –

		PLAYER 2	
		X	**Y**
PLAYER 1	**X**	70,70	80,30
	Y	30,80	90,90

In each cell, Player 1's payoff is listed first and Player 2's payoff is listed second. The actual payoffs that are realized will be determined by Player 1's choice and Player 2's choice together. You can read the payoffs from the table in this way:

- If Player 1 choses **X** and Player 2 chooses **X**, each player receives 70 points.
- If Player 1 chooses **X** and Player 2 chooses **Y**, Player 1 receives 80 points and Player 2 receives 30 points.
- If Player 1 chooses **Y** and Player 2 chooses **X**, Player 1 receives 30 points and Player 2 receives 80 points.
- If Player 1 chooses **Y** and Player 2 chooses **Y**, each player receives 90 points.

To make the tables easier to read, the computer will always highlight *your* payoffs in blue while you're making your decisions.

In each round, the payoffs from your choices (or numbers in the cells) will be DIFFERENT. So please carefully read the payoffs from the table in each round before making a choice. The actual tables you will see are all listed on the last page.

Message:

Player 1 will have the opportunity to send a message to Player 2 after Player 1 makes his choice, but before Player 2 takes her action. In the message, Player 1 can indicate which choice he made, as well as a suggestion to Player 2 on her action. Player 1 can send one of three messages: "I have chosen X/Y. You should choose X", "I have chosen X/Y. You should choose Y," or "No message." The selected message will be delivered from Player 1 to Player 2, and then Player 2 will make her choice: X or Y. Player 2 will NOT see whether Player 1 chose 'X' or 'Y' before she makes her choice. She will only see the message.

The sequence of Part 3 is as follows:

1. **Player 1 Decision:** Within a pair, Player 1 will make his decision and choose X or Y. This choice will not be revealed to Player 2.
2. **Message stage:** Player 1 will be given the opportunity to send a message to Player 2, where Player 1 can make a statement about the choice he has made and a suggestion to Player 2 on what she should choose. Once Player 1 sends this message, it is delivered to Player 2.
3. **Player 2 Decision:** Player 2 will make her decision and choose X or Y.
4. **New round begins:** You will be randomly matched with another participant, and will go through this sequence again. You will play a total of 5 rounds. You will stay in the same role as Player 1 or Player 2 for all 5 rounds.

At the end of the 5 rounds, you will be asked to fill out a short questionnaire.

We will provide the following information about decisions made at **the end of the session**:your partner's choice in each round and your payoff in each round**.** You will not learn your payoffs from any round until the very end of the session.

Part 3 Payoffs:

If Part 3 is chosen for payment, the computer will randomly select 1 of the 5 rounds and the points you earn from that round will determine your payment. Since, there is no way to know which round the computer will select, you should make your decision in each round as if it will determine your payment.

Final Payment:

One of the three parts will be randomly picked for payment. You will receive $5 as a show-up fee in addition to your earnings from that part.

The following are the 5 games you will see, one in each round. The computer randomly selects one game for every round, so the sequence might not be the same as listed here. In each table at least one payoff changes which alters the game. So pay attention and make your decision wisely.

Game 1

		PLAYER 2	
PLAYER 1		**X**	**Y**
	X	70,70	110,30
	Y	30,110	90,90

Game 2

		PLAYER 2	
PLAYER 1		**X**	**Y**
	X	70,70	110,30
	Y	30,80	90,90

Game 3

		PLAYER 2

		X	Y
PLAYER 1	X	70,70	80,30
	Y	30,80	90,90

Game 4

		PLAYER 2	
		X	Y
PLAYER 1	X	70,70	130,30
	Y	30,80	90,90

Game 5

		PLAYER 2	
		X	Y
PLAYER 1	X	70,70	130,30
	Y	30,130	90,90