

TASK # 1

SCRATCH BLOCK DESCRIPTION

- Go to **Events**

Drag the **green flag** block to the script area.

- Go to **Sensing**

Drag the **ask and wait** block.

Type: *What is your name?*

- Go to **Looks**

Drag the **say for seconds** block.

- Go to **Operators**

Drag a **join** block.

- Place the **join** block inside the **say** block.

- In the **first space** of the join block, type:
Hello,

- Go back to **Sensing**

Drag the **answer** block.

- Put the **answer** block into the **second space** of the join block.

Scratch - Personalized Greeting

Scratch - Imagine, Program, S...

scratch.mit.edu/projects/editor/?tutorial=getStarted

Scratch

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Join Scratch Sign In

Code Costumes Sounds

Sensing

Motion

Looks

Sound

Events

Control

Sensing

Operators

Variables

My Blocks

when clicked

ask What's your name? and wait

set name to answer

say join hello join answer welcome to scratch for 2 seconds

name

Sprite1

Size 100 Direction 90

Stage

Backdrops 1

Hey there! There is a new extension!

TASK 2

SCRATCH BLOCK DESCRIPTION

- Go to **Variables** and create two variables: `Number1` and `Number2`.
- Click the **green flag** to start the program.
- Use **ask and wait** to ask for the first number and store it in `Number1`.
- Use **ask and wait** to ask for the second number and store it in `Number2`.
- Use **Operators** to:
 - add the two numbers and store the result
 - subtract the second number from the first
 - multiply the two numbers
 - divide the first number by the second
- Use **Looks** to display the results.

Scratch editor interface showing a project titled "Untitled-2 on Scratch". The browser address bar shows scratch.mit.edu/projects/1271193741/editor. The project is named "Untitled-2".

The left sidebar contains the "Variables" panel with a list of variables: num 2, num 1, product, quotient, and sub. The "Code" panel shows a script starting with "when clicked", followed by "ask enter first number and wait", "set num 1 to answer", "ask enter second number and wait", "set num 2 to answer", "set add to num 1 + num 2", "set sub to num 1 - num 2", "set product to num 1 * num 2", and "set quotient to num 1 / num 2". The script then uses "say join" blocks to display the results of these calculations for 2 seconds each.

The right sidebar shows the "Stage" area with a Scratch cat sprite. The "Variables" panel on the right displays the current values: num 1 (4), num 2 (4), add (8), sub (0), product (16), and quotient (1). The "Sprite" panel shows the sprite "Sprite1" with a size of 100 and a direction of 90. The "Backdrops" panel shows a single backdrop.

A notification bubble at the bottom left says: "Hey there! There is a new extension!".

TASK 3

SCRATCH BLOCK DESCRIPTION

1. Create variables: Marks1, Marks2, Marks3, TotalMarks, Percentage, Grade.
2. Ask the user for the three marks and store them.
3. Calculate TotalMarks by adding all three marks.
4. Calculate $\text{Percentage} = \text{TotalMarks} \div 300 \times 100$.
5. Use **if / else if** blocks to assign Grade based on percentage:
 - $\geq 90 \rightarrow \text{A}$, $\geq 80 \rightarrow \text{B}$, $\geq 70 \rightarrow \text{C}$, $\geq 60 \rightarrow \text{D}$, else $\rightarrow \text{F}$.
6. Display TotalMarks, Percentage, and Grade.

Scratch editor interface showing a project titled "Untitled-2 on Scratch". The code area contains a script for a personalized greeting and grade calculation. The script starts with a "when clicked" event, followed by asking for the user's ID and name, and then asking for marks in three subjects. The marks are stored in variables s1, s2, and s3. The total marks are calculated as s1 + s2 + s3, and the percentage is calculated as (total / 300) * 100. The percentage is then used to determine the grade: A (percentage >= 90), B (percentage >= 80), C (percentage >= 70), D (percentage >= 60), and F (percentage < 60). The grade is displayed on the stage.

```
when clicked
ask enter your id and wait
set id to answer
ask enter your name and wait
set name to answer
ask marks of subject 1 and wait
set s1 to answer
ask marks of subject 2 and wait
set s2 to answer
ask marks of subject 3 and wait
set s3 to answer
set total to s1 + s2 + s3
set percentage to total / 300 * 100
if percentage = 90 or percentage > 90 then
  set grade to A
  change grade by 1
  show variable grade
```

Variables:

- grade: 0
- id: 6577
- name: as
- s1: 90
- s2: 90
- s3: 90
- total: 270
- percentage: 90
- grade: A

Hey there! There is a new extension!

Scratch editor interface showing the same project, but with the code area expanded to show the full script. The script includes a "when clicked" event, asking for the user's ID and name, and then asking for marks in three subjects. The marks are stored in variables s1, s2, and s3. The total marks are calculated as s1 + s2 + s3, and the percentage is calculated as (total / 300) * 100. The percentage is then used to determine the grade: A (percentage >= 90), B (percentage >= 80), C (percentage >= 70), D (percentage >= 60), and F (percentage < 60). The grade is displayed on the stage.

```
when clicked
ask enter your id and wait
set id to answer
ask enter your name and wait
set name to answer
ask marks of subject 1 and wait
set s1 to answer
ask marks of subject 2 and wait
set s2 to answer
ask marks of subject 3 and wait
set s3 to answer
set total to s1 + s2 + s3
set percentage to total / 300 * 100
if percentage = 90 or percentage > 90 then
  set grade to A
  change grade by 1
  show variable grade
else
  if percentage > 80 or percentage = 80 then
    set grade to B
  else
    if percentage > 70 or percentage = 70 then
      set grade to C
    else
      if percentage > 60 or percentage = 60 then
        set grade to D
      else
        set grade to F
```

Variables:

- grade: 0
- id: 6577
- name: as
- s1: 90
- s2: 90
- s3: 90
- total: 270
- percentage: 90
- grade: A

Hey there! There is a new extension!

Lab 02 | Scratch Personalized Greeting | Untitled-2 on Scratch

scratch.mit.edu/projects/1271197914/editor

Scratch | Settings | File | Edit | Untitled-2 | See Project Page | Tutorials | Debug | Save Now | virat20069

Code | Costumes | Sounds

Variables

- Make a Variable
- grade
- is
- my variable
- name
- percentage
- s1
- s2
- s3
- total

My Blocks

Hey there! 🐱
There is a new extension!

set grade to 0
else
if percentage > 60 or percentage = 60 then
set grade to D
else
set grade to F
say id for 2 seconds
say name for 2 seconds
say total for 2 seconds
say percentage for 2 seconds
say grade for 4 seconds

id 6577
name ab
s1 90
s2 90
s3 90
total 270
percentage 90
grade A

Sprite1

Snipping Tool

Screenshot copied to clipboard
Automatically saved to screenshots folder.

Mark-up and share

Backpack

TASK 4

SCRATCH BLOCK DESCRIPTION

- Create a variable: Celsius and Fahrenheit.
- Ask the user for the temperature in Celsius and store it in Celsius.
- Calculate $\text{Fahrenheit} = (\text{Celsius} \times 9 \div 5) + 32$.
- Use an **if / else** block:
 - If $\text{Fahrenheit} > 100 \rightarrow$ say "It's hot!"
 - Else \rightarrow say "It's cool."

Lab 02 x Scratch Personalized Greeting x Untitled-3 on Scratch x +

scratch.mit.edu/projects/1271204891/editor

Scratch! Settings File Edit Untitled-3 See Project Page Tutorials Debug Save Now virat20089

Code Costumes Sounds

Looks

Motion

Looks

say Hello! for 2 seconds

say Hello!

Sound

think Hmm... for 2 seconds

think Hmm...

Events

Control

switch costume to costume2

Sensing

next costume

Operators

switch backdrop to backdrop1

Variables

next backdrop

My Blocks

change size by 10

Hey there! There is a new extension!

when clicked

ask enter temperature in celsius and wait

set celsius to answer

set fahrenheit to $\text{celsius} * 9 / 5 + 32$

if fahrenheit > 100 then

say its hot for 2 seconds

else

say its cool for 2 seconds

celsius 27

fahrenheit 80.6

Sprite1

Size 100 Direction 90

Backdrops 1

Backpack

TASK 5

SCRATCH BLOCK DESCRIPTION

- Create a variable: Password.
- Set Password to the correct value (e.g., "NUCES").
- Ask the user to enter a password and store it in Answer.
- Use an **if / else** block:
 - If Answer = Password → say "Access Granted"
 - Else → say "Access Denied"

Scratch editor interface showing a project titled "Untitled-4 on Scratch". The browser address bar shows the URL: scratch.mit.edu/projects/1271206961/editor.

The left sidebar contains the "Code" tab, showing the "Looks" category. The "My Blocks" section includes a block titled "Hey there! 🐱" with the text "There is a new extension!".

The main workspace displays a script for a password login system:

```
when clicked
  set correct password to NUCES
  ask enter your password and wait
  set enter password to answer
  if enter password = correct password then
    say access granted for 2 seconds
  else
    say access denied for 2 seconds
```

The right sidebar shows the "Stage" area with the Scratch cat sprite. Below the stage, the "Sprite" panel shows the "Sprite1" instance with properties: x: 0, y: 0, size: 100, direction: 90. The "Backdrops" panel shows 1 backdrop.

TASK 6

SCRATCH BLOCK DESCRIPTION

- Ask the user for a starting number and store it in `Number`.
- Use a **repeat until** loop:
 - Repeat until `Number = 0`
 - Inside the loop:
 - Say `Number` for 1 second
 - Change `Number` by `-1`
- After the loop ends, say "Blast Off!"

Scratch editor interface showing a project titled "Untitled-5 on Scratch". The URL is scratch.mit.edu/projects/1271209038/editor. The code area contains the following script:

```
when clicked
ask enter a starting number and wait
set number to answer
repeat until number = 0
  say number for 2 seconds
  change number by -1
say Blast off !! for 2 seconds
```

The right panel shows the stage with a cat sprite and a variable monitor for "number" set to 0. The bottom right panel shows the sprite properties for "Sprite1" (cat) with size 100 and direction 90.

Backpack

TASK 7

SCRATCH BLOCK DESCRIPTION

- Ask the user for a number and store it in `Number`.
- Use an **if / else** block:
 - If `Number mod 2 = 0` → say "Your number is even"
 - Else → say "Your number is odd"

Lab 02 x Untitled-7 on Scratch x +

scratch.mit.edu/projects/1271560283/editor?tutorial=getStarted

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Scratch Settings File Edit Untitled-7 See Project Page Tutorials Debug Save Now virat20089

Code Costumes Sounds

Looks

- say Hello! for 2 seconds
- say Hello!
- think Hmm... for 2 seconds
- think Hmm...

Control

- when green flag clicked
- ask enter your number and wait
- set num to answer
- if $\text{num} \bmod 2 = 0$ then
- say your number is even for 20 seconds
- else
- say your number is odd for 2 seconds

Operators

- num mod 2 = 0

Variables

- num 100

My Blocks

- Hey there! There is a new extension!

Backpack

Sprite1

Size 100 Direction 90

Stage

Backdrops 1

your number is even

TASK 8

SCRATCH BLOCK DESCRIPTION

- Ask the user for a **starting number** and store it in `Start`.
- Ask the user for an **ending number** and store it in `End`.
- Create a variable `Sum` and set it to 0.
- Use a **repeat until** loop:
 - Repeat until `Start > End`
 - Inside the loop:
 - Change `Sum` by `Start`
 - Change `Start` by 1
- After the loop, say `Sum`.

Scratch editor interface showing a project titled "Scratch Sum Calculation". The code is written in Scratch blocks, calculating the sum of numbers from a starting point to an ending point.

Code Blocks:

```
when green flag clicked
  set sum to 0
  ask enter starting number and wait
  set start to answer
  ask enter ending number and wait
  set end to answer
  set counter to start
  repeat until counter > end
    change sum by counter
    change counter by 1
  say join the sum is sum for 20 seconds
```

Stage Area:

- start: 2
- end: 4
- counter: 5
- sum: 9
- Sprite: Sprite1 (cat)
- Speech bubble: the sum is 9

Bottom Panel:

- Sprite: Sprite1
- Size: 100
- Direction: 90
- Backdrops: 1

Hey there! There is a new extension!

TASK 9

SCRATCH BLOCK DESCRIPTION

- Ask the user for the **number of sides** and store it in `Sides`.
- Put the **pen down**.
- Use a **repeat** loop `Sides` times:
 - Move a certain number of steps
 - Turn $360 \div \text{Sides}$ degrees
- Lift the **pen up** (optional)

Scratch editor interface showing a project titled "Scratch Sum Calculation". The code area contains the following script:

```
when clicked
  erase all
  pen up
  go to x: 0 y: 0
  ask enter the shape number and wait
  set shape to answer
  pen down
  repeat (shape)
    move 100 steps
    turn 360 / shape degrees
```

The right panel shows the stage with a cat sprite and a triangle drawn. The shape variable is set to 3.

Sprite: Sprite1
x: 0, y: 0
Size: 100, Direction: 90
Backdrops: 1

TASK 10

SCRATCH BLOCK DESCRIPTION

- Create a variable `SecretNumber` and set it to pick random 1 to 10.
- Create a variable `Guess`.
- Use a **repeat until** loop:
 - Ask the user to guess a number and store it in `Guess`.
 - If `Guess > SecretNumber` → say "Too high!"
 - Else if `Guess < SecretNumber` → say "Too low!"
 - Else → say "Correct!"

Scratch Project: Sum Calculation

Code:

```
when clicked
  set secretnumber to pick random 1 to 10
  repeat until guess = secretnumber
    ask guess a number between 1 to 10 and wait
    set guess to answer
    if guess > secretnumber then
      say too high for 10 seconds
    else
      if guess < secretnumber then
        say too low for 10 seconds
      else
        say correct guess for 10 seconds
```

Stage:

secretnumber: 7
guess: 9

Sprite: Sprite1
Size: 100
Direction: 90

Backdrops: 1

Pen: change size by 10, set size to 100%, change color effect by 25